**JQA File No. :** KL80150408
**Issue Date :** October 15, 2015

# TEST REPORT

| | | |
|---|---|---|
| **Applicant** | : | Sharp Corporation, Communication Systems Division |
| **Address** | : | 2-13-1, Iida Hachihonmatsu, Higashi-Hiroshima City, Hiroshima, 739-0192, Japan |
| **Products** | : | Smart Phone |
| **Model No.** | : | SH-02H |
| **Serial No.** | : | 004401115990776<br>004401115990578<br>004401115990735 |
| **FCC ID** | : | APYHRO00228 |
| **Test Standard** | : | CFR 47 FCC Rules and Regulations Part 15 |
| **Test Results** | : | **Passed** |
| **Date of Test** | : | September 16 ~ October 1, 2015 |


Kousei Shibata
Manager
Japan Quality Assurance Organization
KITA-KANSAI Testing Center
SAITO EMC Branch
7-3-10, Saito-asagi, Ibaraki-shi, Osaka 567-0085, Japan

- The measurement values stated in Test Report was made with traceable to National Institute of Advanced Industrial Science and Technology (AIST) of Japan and National Institute of Information and Communications Technology (NICT) of Japan.
- The applicable standard, testing condition and testing method which were used for the tests are based on the request of the applicant.
- The test results presented in this report relate only to the offered test sample.
- The contents of this test report cannot be used for the purposes, such as advertisement for consumers.
- This test report shall not be reproduced except in full without the written approval of JQA.
- VLAC does not approve, certify or warrant the product by this test report.

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## DEFINITIONS FOR ABBREVIATION AND SYMBOLS USED IN THIS TEST REPORT

**EUT** : Equipment Under Test
**AE** : Associated Equipment
**N/A** : Not Applicable
**N/T** : Not Tested

**EMC** : Electromagnetic Compatibility
**EMI** : Electromagnetic Interference
**EMS** : Electromagnetic Susceptibility

☑ - indicates that the listed condition, standard or equipment is applicable for this report.
☐ - indicates that the listed condition, standard or equipment is not applicable for this report.

## 1 Description of the Equipment Under Test

| | | | |
|---|---|---|---|
| 1. | Manufacturer | : | Sharp Corporation, Communication Systems Division<br>2-13-1, Iida Hachihonmatsu, Higashi-Hiroshima City, Hiroshima, 739-0192, Japan |
| 2. | Products | : | Smart Phone |
| 3. | Model No. | : | SH-02H |
| 4. | Serial No. | : | 004401115990776<br>004401115990578<br>004401115990735 |
| 5. | Product Type | : | Pre-production |
| 6. | Date of Manufacture | : | July, 2015 |
| 7. | Power Rating | : | 4.0VDC (Lithium-ion Battery 1UAF375986Z 2810mAh) |
| 8. | Grounding | : | None |
| 9. | Operating Frequency | :<br>:<br>: | 5180.0 MHz(36CH) –5700.0MHz(140CH): IEEE802.11a/n/ac(20MHz)<br>5190.0 MHz(38CH) –5670.0MHz(134CH): IEEE802.11n/ac(40MHz)<br>5210.0 MHz(42CH) –5610.0MHz(122CH): IEEE802.11ac(80MHz) |
| 10. | Modulation | : | OFDM |
| 11. | Antenna Type | : | Inverted-L Type Antenna (Integral) |
| 12. | Antenna Gain | : | 0 dBi |
| 13. | Category | : | Spread Spectrum Transmitter(OFDM)/UNII* |
| 14. | EUT Authorization | : | Certification |
| 15. | Received Date of EUT | : | September 11, 2015 |

*The 80MHz BW + 80MHz BW mode is not supported. The EUT does not apply the contiguous 80 MHz BW mode and the straddled operations.

## 2 Summary of Test Results

Applied Standard : CFR 47 FCC Rules and Regulations Part 15
Subpart E – Unlicensed National Information Infrastructure Devices

The EUT described in clause 1 was tested according to the applied standard shown above.
Details of the test configuration is shown in clause 6.
The conclusion for the test items of which are required by the applied standard is indicated under the test result.

☑ - The test result was **passed** for the test requirements of the applied standard.

☐ - The test result was **failed** for the test requirements of the applied standard.

☐ - The test result was **not judged** the test requirements of the applied standard.

In the approval of test results,
- Determining compliance with the limits in this report was based on the results of the compliance measurement, not taking into account measurement instrumentation uncertainty.
- No deviations were employed from the applied standard.
- No modifications were conducted by JQA to achieve compliance to the limitations.

Reviewed by:

Shigeru Kinoshita
Assistant Manager
JQA KITA-KANSAI Testing Center
SAITO EMC Branch

Tested by:

Shigeru Osawa
Deputy Manager
JQA KITA-KANSAI Testing Center
SAITO EMC Branch

## 3 Test Procedure

Test Requirements : CFR 47 FCC Rules and Regulations Part 15
Subpart E – Unlicensed National Information Infrastructure Devices

Test Procedure : ANSI C63.10–2009
Testing unlicensed wireless devices.

KDB 789033 D02
General UNII Test Procedures New Rules v01: June 6, 2014

KDB 905462 D02
UNII DFS Compliance Procedures New Rules v01r02: May 15, 2015

KDB 644545 D03
Guidance for IEEE 802 11ac New Rules v01: August 14, 2014

## 4 Test Location

Japan Quality Assurance Organization (JQA)
KITA-KANSAI Testing Center
7-7, Ishimaru, 1-chome, Minoh-shi, Osaka, 562-0027, Japan
SAITO EMC Branch
7-3-10, Saito-asagi, Ibaraki-shi, Osaka 567-0085, Japan

## 5 Recognition of Test Laboratory

JQA KITA-KANSAI Testing Center SAITO EMC Branch is accredited under ISO/IEC 17025 by following accreditation bodies and the test facility is registered by the following bodies.

| | | |
|---|---|---|
| VLAC Accreditation No. | : | VLAC-001-2 (Expiry date : March 30, 2016) |
| VCCI Registration No. | : | A-0002 (Expiry date : March 30, 2016) |
| BSMI Registration No. | : | SL2-IS-E-6006, SL2-IN-E-6006, SL2-R1/R2-E-6006, SL2-A1-E-6006 (Expiry date : September 14, 2016) |
| IC Registration No. | : | 2079E-3, 2079E-4 (Expiry date : July 16, 2017) |

Accredited as conformity assessment body for Japan electrical appliances and material law by METI. (Expiry date : February 22, 2016)

# 6 Description of Test Setup

## 6.1 Test Configuration

The equipment under test (EUT) consists of :

| | Item | Manufacturer | Model No. | Serial No. | FCC ID |
|---|---|---|---|---|---|
| A | Smart Phone | Sharp | SH-02H | 004401115990776 *1)<br>004401115990578 *2)<br>004401115990735 *3) | APYHRO00228 |
| B | AC Adapter | Fujitsu Corporation | 05 | XEA | N/A |
| C | Stereo Handsfree | Sharp | SHLDL1 | -- | N/A |

*1) Used for AC Powerline Conducted Emission and Field Strength of Spurious Emission
*2) Used for Antenna Conducted Emission
*3) Used for DFS Measurement

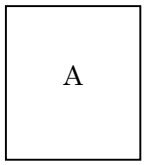
The auxiliary equipment used for testing :
None

Type of Cable:

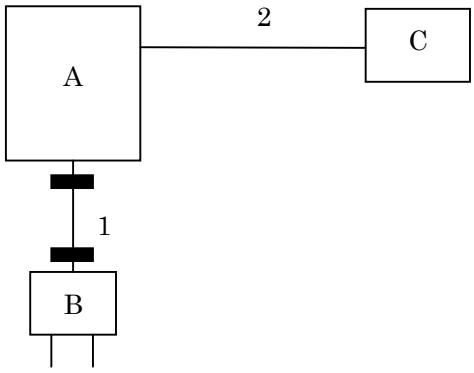
| No. | Description | Identification (Manu. etc.) | Connector Shielded | Cable Shielded | Ferrite Core | Length (m) |
|---|---|---|---|---|---|---|
| 1 | USB conversion cable | -- | -- | NO | YES | 1.2 |
| 2 | Handsfree Cable | -- | -- | NO | NO | 1.5 |

## 6.2 Test Arrangement (Drawings)

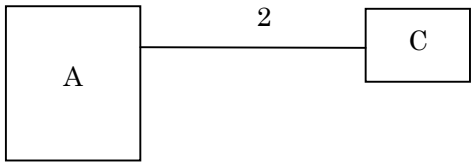
a) Single Unit




b) AC Adapter used




c) Earphone used




▌: Ferrite Core

## 6.3 Operating Condition

Power Supply Voltage : 4.0 VDC (for Battery)
120 VAC, 60 Hz (For AC Adapter)

Operation Mode :
The EUT is set with the test mode, the specification of the test mode is as followings.

Transmitting frequency : 5180.0 MHz(36CH) –5700.0MHz(140CH): IEEE802.11a/n/ac(20MHz)
: 5190.0 MHz(38CH) –5670.0MHz(134CH): IEEE802.11n/ac(40MHz)
: 5210.0 MHz(42CH) –5610.0MHz(122CH): IEEE802.11ac(80MHz)

Receiver frequency : 5180.0 MHz(36CH) – 5700.0 MHz(140CH)

Modulation Type
1. 802.11a : OFDM
2. 802.11n/ac(20MHz) : OFDM
3. 802.11n/ac(40MHz) : OFDM
4. 802.11ac(80MHz) : OFDM

Other Clock Frequency
19.2MHz, 48MHz, 12MHz, 27.12MHz

The EUT was rotated through three orthogonal axis (X, Y and Z axis) in radiated measurement.
The EUT with temporary antenna port was used in conducted measurement.

## 6.4 Maximum Output Power

The preliminary maximum peak conducted output power measurements were performed each TX rate and maximum value are listed as followings.

**802.11a**

| Channel | 36 | 44 | 48 | 52 | 56 | 64 | 100 | 116 | 140 |
|---|---|---|---|---|---|---|---|---|---|
| Frequency(MHz) | 5180 | 5220 | 5240 | 5260 | 5280 | 5320 | 5500 | 5580 | 5700 |
| Power(dBm) | 10.31 | 10.13 | 10.04 | 10.00 | 10.06 | 9.92 | 9.68 | 9.61 | 9.50 |

The TX rate 6Mbps was maximum case.(MCS0)

**802.11n (20MHz BW)**

| Channel | 36 | 44 | 48 | 52 | 56 | 64 | 100 | 116 | 140 |
|---|---|---|---|---|---|---|---|---|---|
| Frequency(MHz) | 5180 | 5220 | 5240 | 5260 | 5280 | 5320 | 5500 | 5580 | 5700 |
| Power(dBm) | 9.02 | 8.83 | 8.78 | 8.71 | 8.78 | 8.66 | 8.44 | 8.36 | 8.26 |

The TX rate 6.5Mbps was maximum case.(MCS0)

**802.11n (40MHz BW)**

| Channel | 38 | 46 | 54 | 62 | 102 | 134 |
|---|---|---|---|---|---|---|
| Frequency(MHz) | 5190 | 5230 | 5270 | 5310 | 5510 | 5670 |
| Power(dBm) | 9.51 | 9.37 | 9.23 | 9.22 | 8.92 | 8.83 |

The TX rate 13.5Mbps was maximum case.(MCS0)

**802.11ac(80MHz BW)**

| Channel | 42 | 58 | 106 | 122 |
|---|---|---|---|---|
| Frequency(MHz) | 5210 | 5290 | 5530 | 5610 |
| Power(dBm) | 8.22 | 7.94 | 7.57 | 7.52 |

The TX rate 29.3Mbps was maximum case.(MCS0)

All test cases were performed to the highest RF output power data rate listed above.

# 7 Test Requirements

## 7.0 Summary of the Test Results

| Test Item | FCC Specification | Reference of the Test Report | Results | Remarks |
|---|---|---|---|---|
| Antenna Requirement | Section 15.203 | Section 1.11 | Passed | - |
| 26dB Bandwidth | Section 15.407(2)(3) | Section 7.1 | - | - |
| Maximum Conducted Output Power | Section 15.407(a)(1)(iv), (2),(3) | Section 7.2 | Passed | For mobile and portable client device |
| Peak Power Spectral Density | Section 15.407(a)(1)(iv), (2),(3) | Section 7.3 | Passed | For mobile and portable client device |
| Peak Excursion | -- | Section 7.4 | N/A | - |
| AC Powerline Conducted Emission | Section 15.407(b)(6) Section 15.207 | Section 7.5 | Passed | - |
| Unwanted Radiated Emission | Section 15.407(b) Section 15.205 Section 15.209 | Section 7.6 | Passed | - |
| Dynamic Frequency Selection | Section 15.407(h)(2) | Section 7.7 | Passed | - |

## 7.1 26dB Bandwidth

For the requirements, ☑ - Applicable [ ☑ - Tested. ☐ - Not tested by applicant request. ]
☐ - Not Applicable

### 7.1.1 Test Results

For the standard, ☐ - **Passed** ☐ - **Failed** ☑ - **Not judged**

Uncertainty of Measurement Results ± 0.9 %(2σ)

Remarks : Reporting Purpose (No limitation applied)

### 7.1.2 Test Instruments

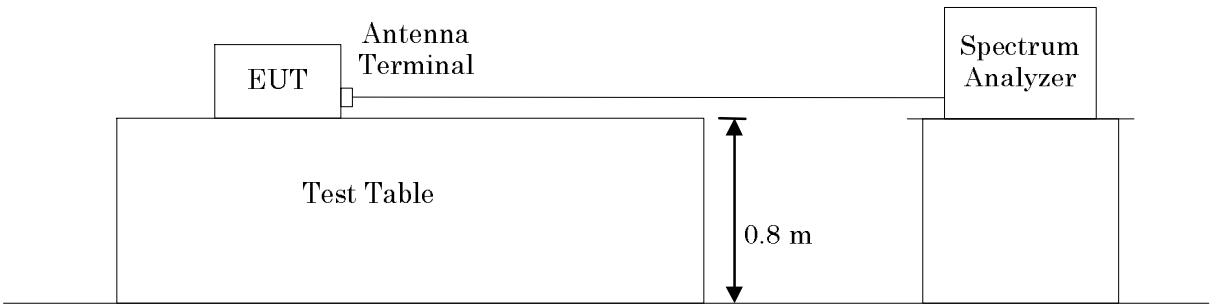
| Shielded Room S4 | | | | |
|---|---|---|---|---|
| **Type** | **Model** | **Serial No. (ID)** | **Manufacturer** | **Cal. Due** |
| Spectrum Analyzer | E4446A | US44300388 (A-39) | Agilent | 2016/08/11 |
| Attenuator | 54A-10 | W5675 (D-28) | Weinschel | 2016/08/16 |
| RF Cable | SUCOFLEX102 | 14253/2 (C-52) | HUBER+SUHNER | 2016/08/16 |

NOTE : The calibration interval of the above test instruments is 12 months.

### 7.1.3 Test Method and Test Setup (Diagrammatic illustration)

The occupied bandwidth measurements were carried out connecting to the spectrum analyzer.
The spectrum analyzer was set in accordance with KDB 789033 D02 as follows;.
The RBW was set approximately 1% of the emission bandwidth.
Set the VBW > RBW., Detector = Peak, and Trace mode = max hold.
The bandwidth function in the analyzer was used.

(referred documentation is No. G70364M)



### 7.1.4 Test Data

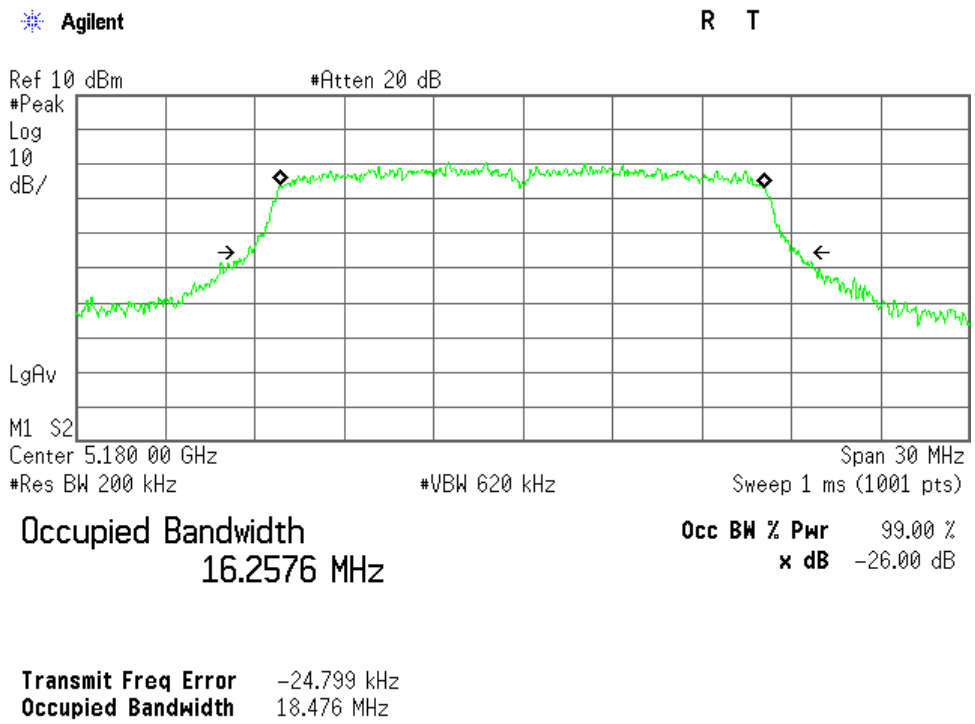
Test Date : September 29, 2015
Temp.: 25°C, Humi: 40%

#### 7.1.4.1 802.11a 26dB/ 99% OBW

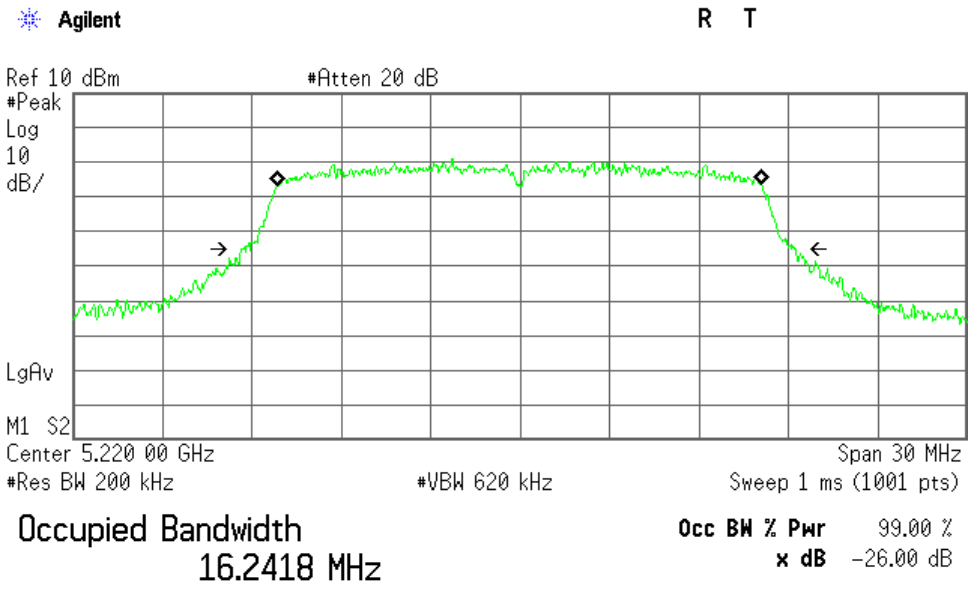
Mode of EUT: TX 802.11a
Test Port: Temporary antenna connector

| Channel | Frequency (MHz) | 26dB OBW (MHz) | 99% OBW (MHz) |
|---|---|---|---|
| 36 | 5180 | 18.476 | 16.258 |
| 44 | 5220 | 18.575 | 16.242 |
| 48 | 5240 | 18.551 | 16.243 |
| 52 | 5260 | 18.635 | 16.240 |
| 56 | 5280 | 18.623 | 16.219 |
| 64 | 5320 | 18.663 | 16.236 |
| 100 | 5500 | 18.584 | 16.241 |
| 116 | 5580 | 18.723 | 16.245 |
| 140 | 5700 | 18.621 | 16.231 |

802.11a 36ch (5180 MHz)

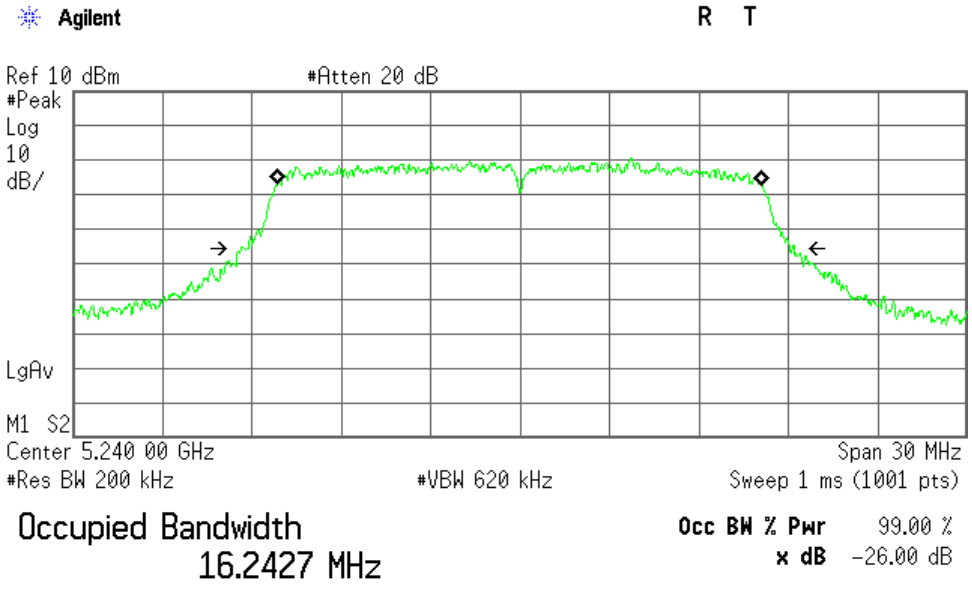


802.11a 44ch (5220 MHz)



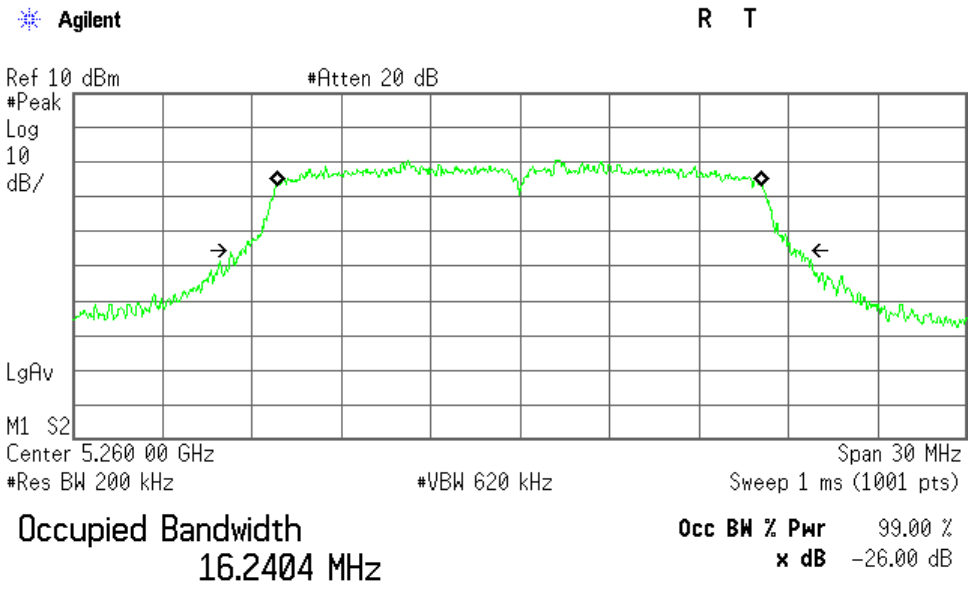

**Transmit Freq Error** -19.647 kHz
**Occupied Bandwidth** 18.575 MHz

802.11a 48ch (5240 MHz)



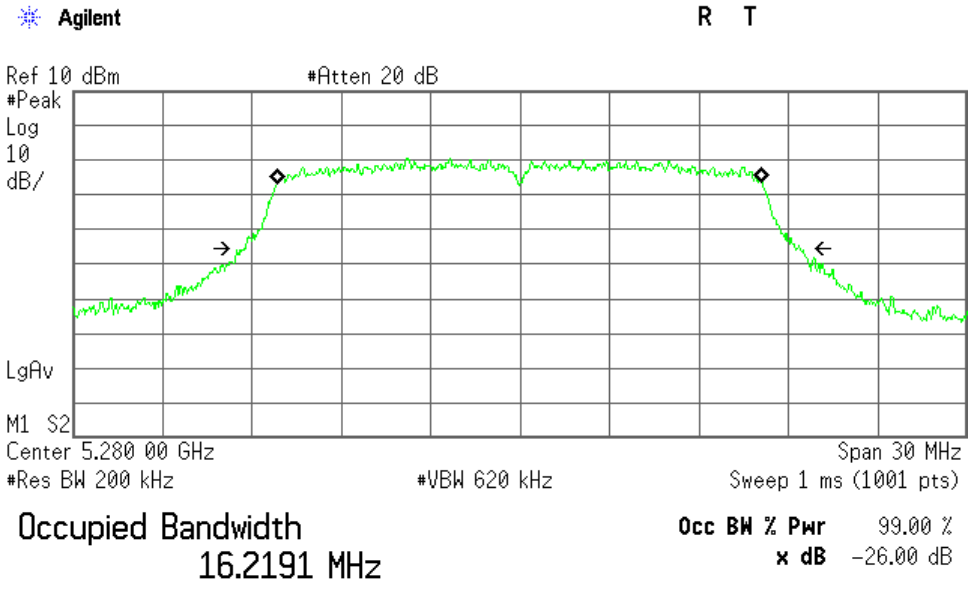

**Transmit Freq Error** -25.058 kHz
**Occupied Bandwidth** 18.551 MHz

802.11a 52ch (5260 MHz)



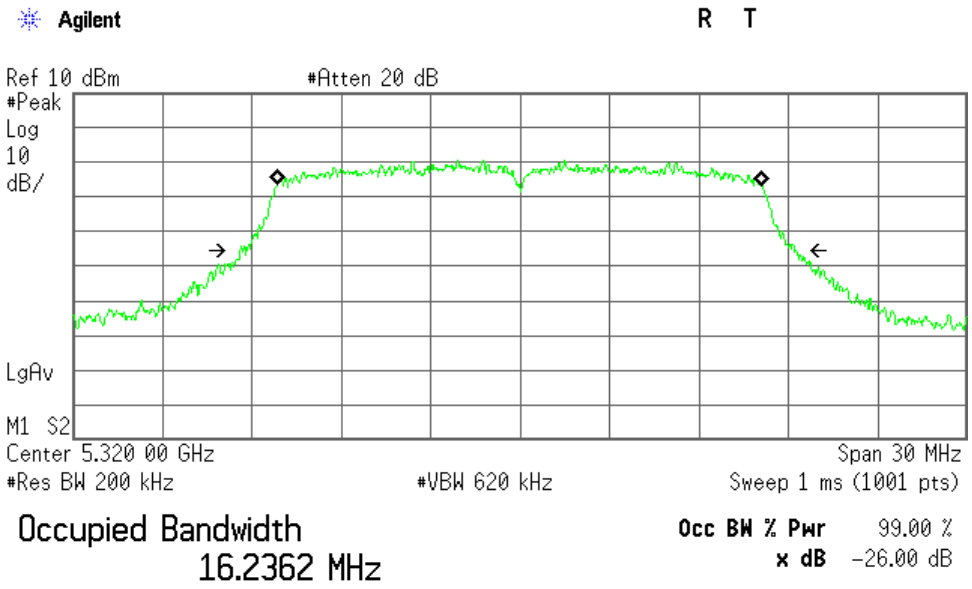

**Transmit Freq Error** -19.418 kHz
**Occupied Bandwidth** 18.635 MHz

802.11a 56ch (5280 MHz)



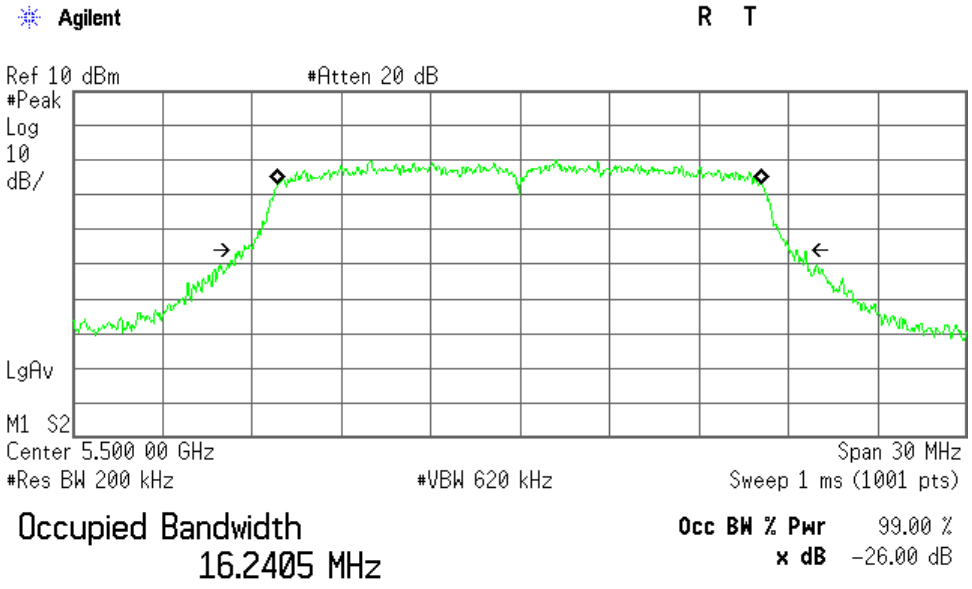

**Transmit Freq Error** -19.429 kHz
**Occupied Bandwidth** 18.623 MHz

802.11a 64ch (5320 MHz)



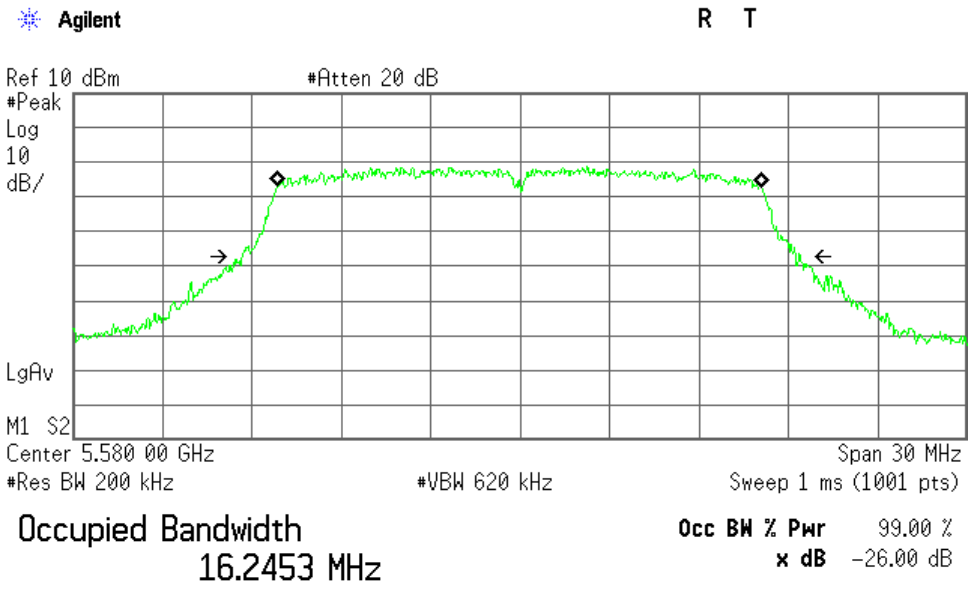

**Transmit Freq Error** -23.237 kHz
**Occupied Bandwidth** 18.663 MHz

802.11a 100ch (5500 MHz)



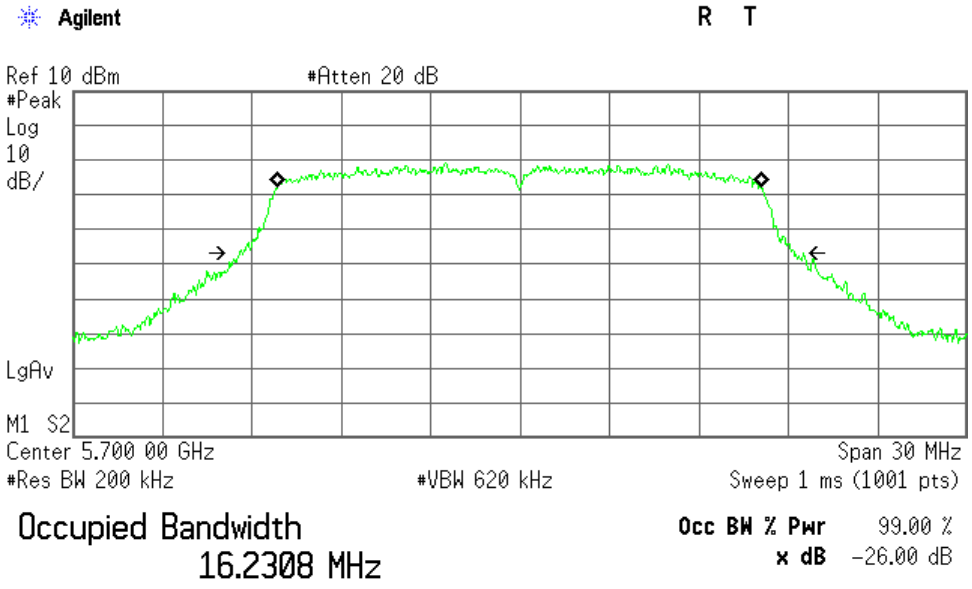

**Transmit Freq Error** -10.581 kHz
**Occupied Bandwidth** 18.584 MHz

802.11a 116ch (5580 MHz)




**Transmit Freq Error** -24.746 kHz
**Occupied Bandwidth** 18.723 MHz

802.11a 140ch (5700 MHz)



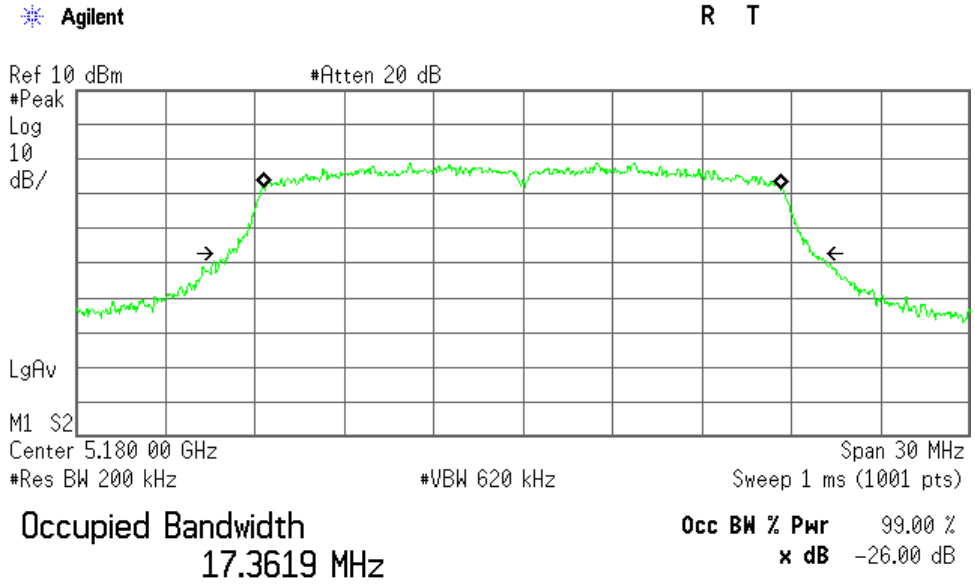

**Transmit Freq Error** -32.370 kHz
**Occupied Bandwidth** 18.621 MHz

### 7.1.4.2 802.11n (20 MHz BW) 26dB/ 99% OBW

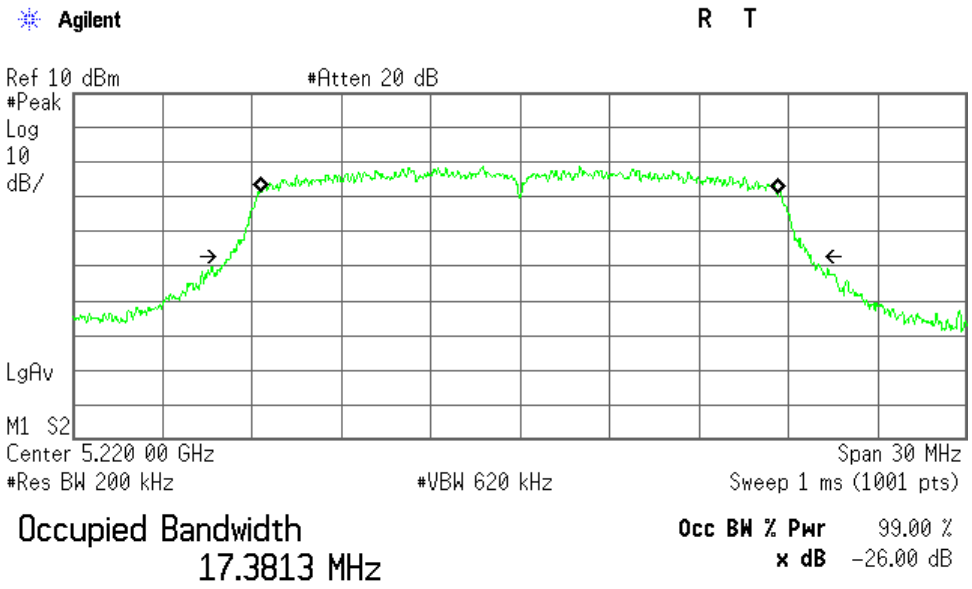
Mode of EUT: Tx 802.11n(20 MHz)
Test Port: Temporary antenna connector

| Channel | Frequency | 26dB OBW | 99% OBW |
|---|---|---|---|
| | (MHz) | (MHz) | (MHz) |
| 36 | 5180 | 19.580 | 17.362 |
| 44 | 5220 | 19.481 | 17.381 |
| 48 | 5240 | 19.462 | 17.383 |
| 52 | 5260 | 19.458 | 17.356 |
| 56 | 5280 | 19.502 | 17.374 |
| 64 | 5320 | 19.397 | 17.337 |
| 100 | 5500 | 19.527 | 17.359 |
| 116 | 5580 | 19.335 | 17.361 |
| 140 | 5700 | 19.583 | 17.371 |

802.11n (20 MHz) 36ch (5180 MHz)

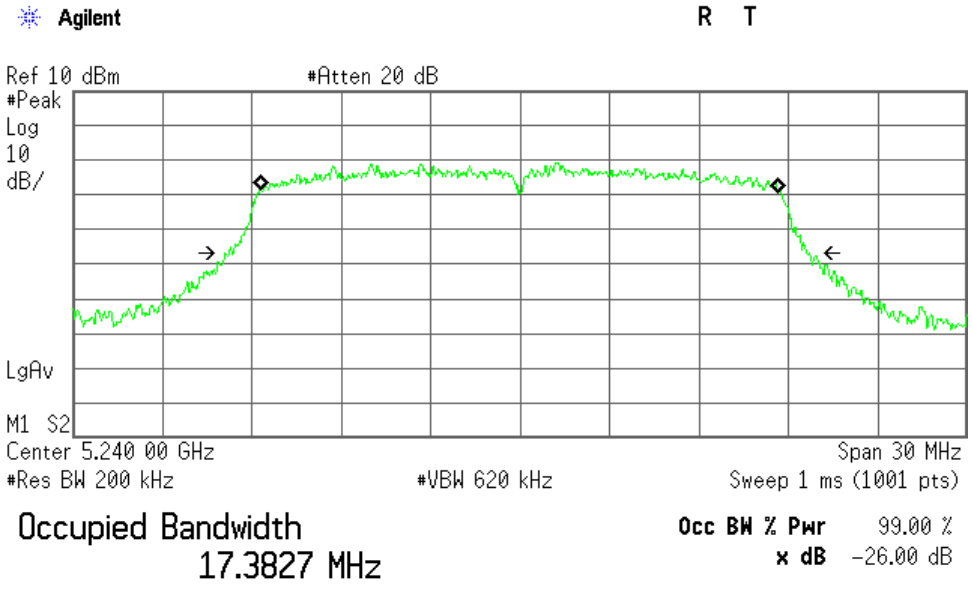


802.11n (20 MHz) 44ch (5220 MHz)



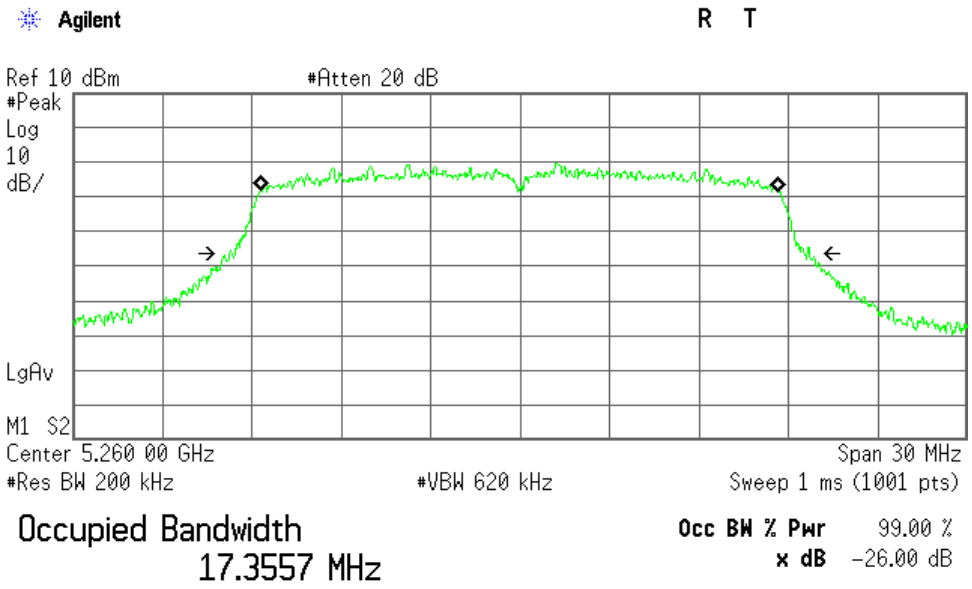

**Transmit Freq Error** −21.560 kHz
**Occupied Bandwidth** 19.481 MHz

802.11n (20 MHz) 48ch (5240 MHz)



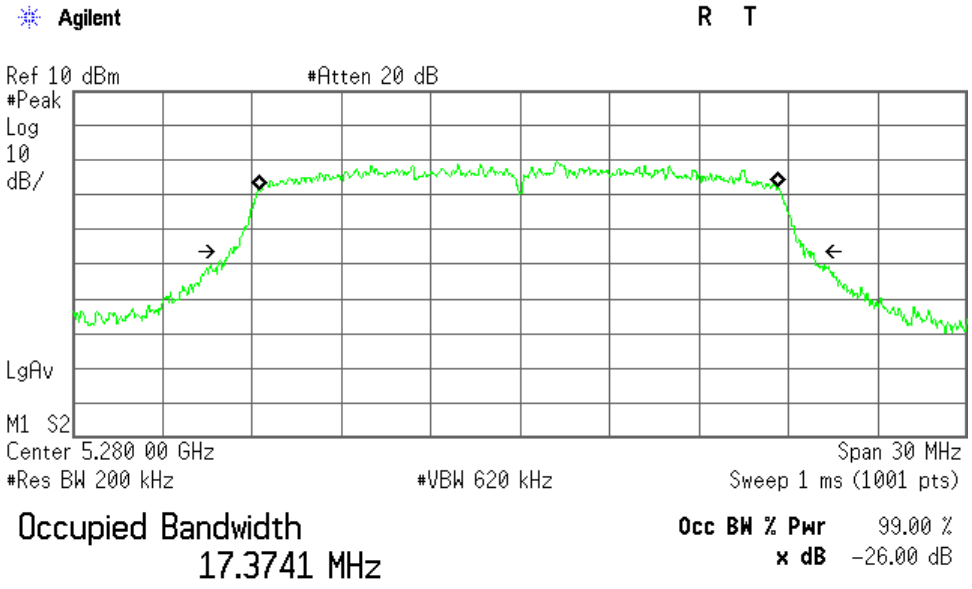

**Transmit Freq Error** −13.979 kHz
**Occupied Bandwidth** 19.462 MHz

802.11n (20 MHz) 52ch (5260 MHz)



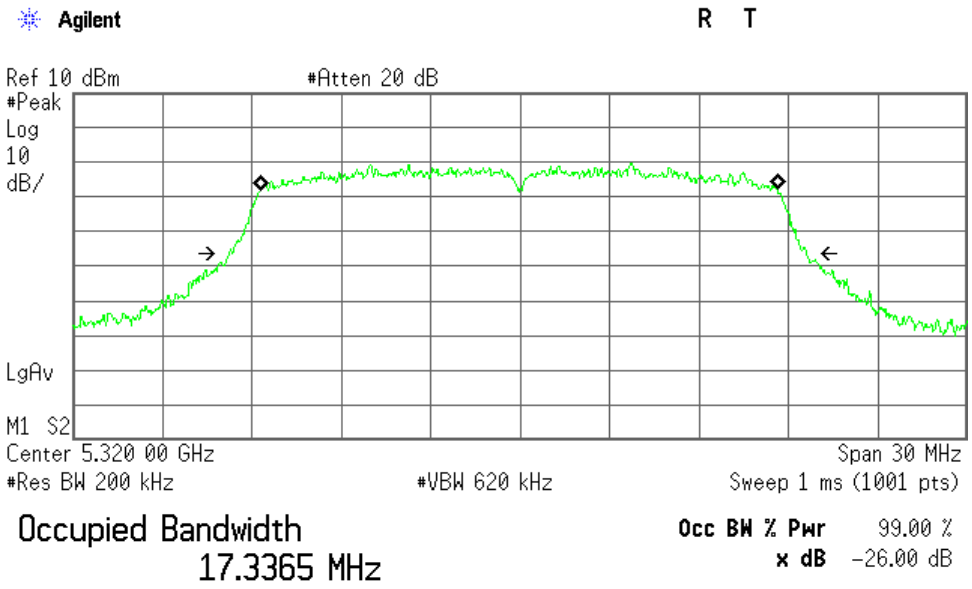

**Transmit Freq Error** −22.607 kHz
**Occupied Bandwidth** 19.458 MHz

802.11n (20 MHz) 56ch (5280 MHz)



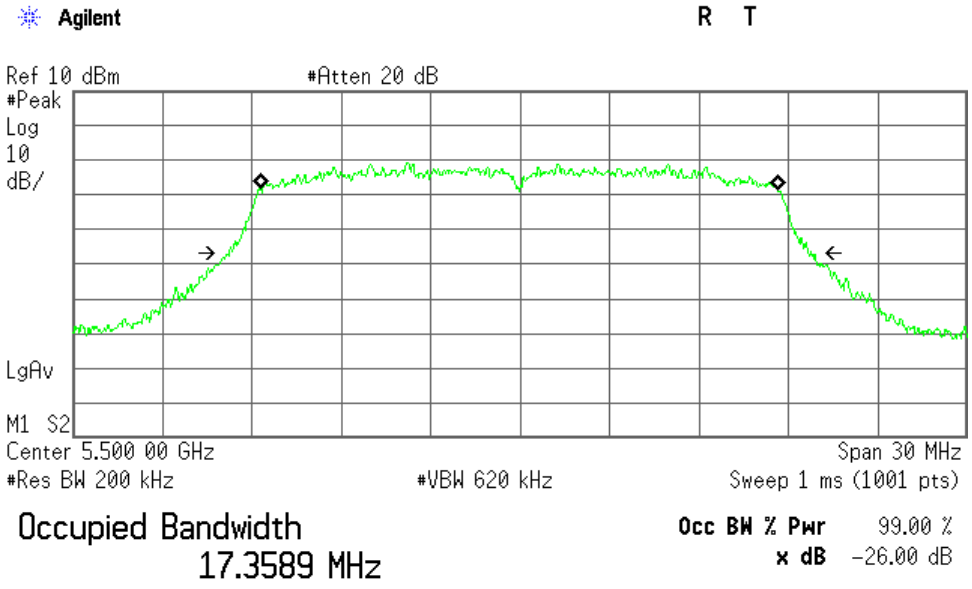

**Transmit Freq Error** −29.595 kHz
**Occupied Bandwidth** 19.502 MHz

802.11n (20 MHz) 64ch (5320 MHz)



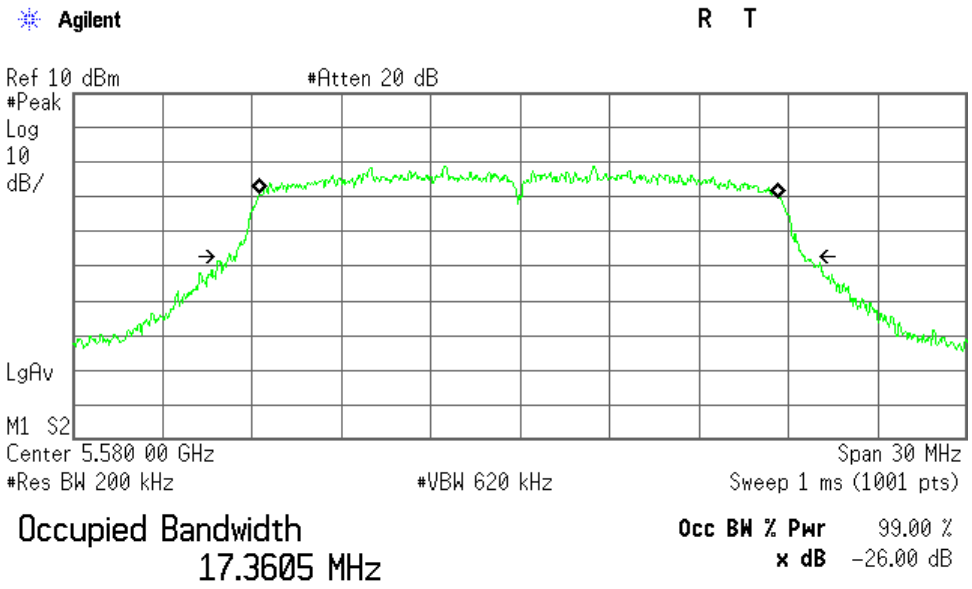

**Transmit Freq Error** −29.719 kHz
**Occupied Bandwidth** 19.397 MHz

802.11n (20 MHz) 100ch (5500 MHz)



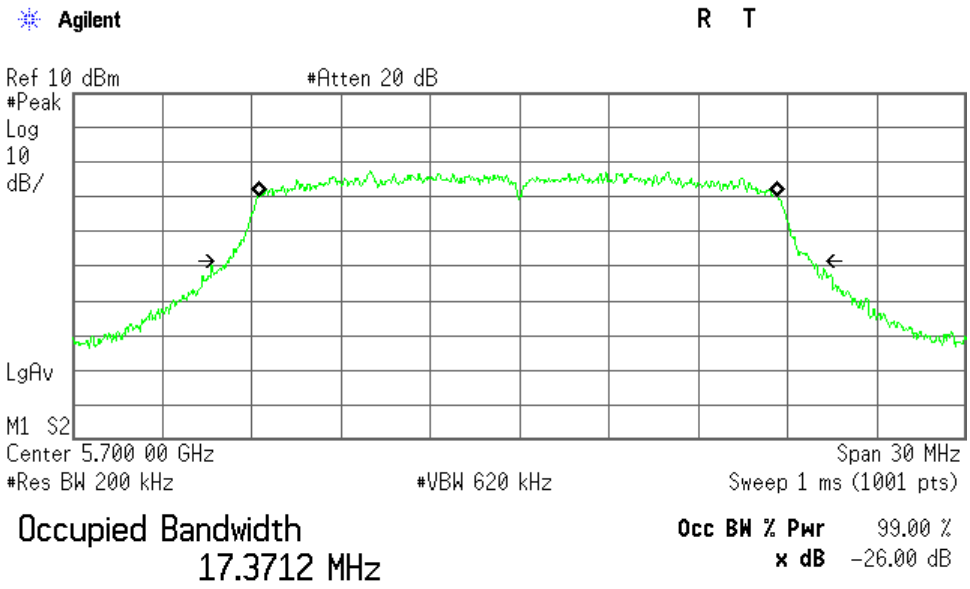

**Transmit Freq Error** −28.106 kHz
**Occupied Bandwidth** 19.527 MHz

802.11n (20 MHz) 116ch (5580 MHz)




**Transmit Freq Error** −36.077 kHz
**Occupied Bandwidth** 19.335 MHz

802.11n (20 MHz) 140ch (5700 MHz)



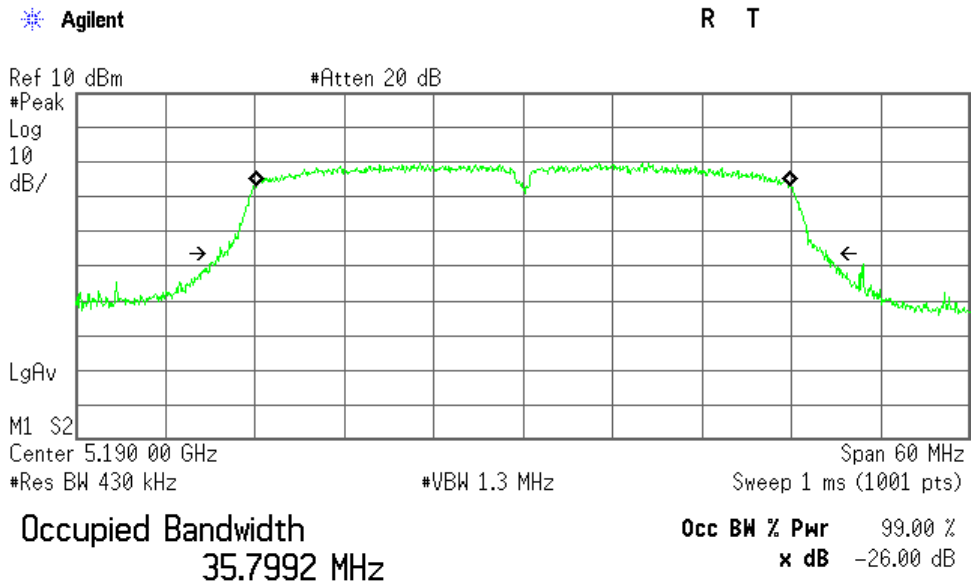

**Transmit Freq Error** −38.765 kHz
**Occupied Bandwidth** 19.583 MHz

### 7.1.4.3 802.11n (40 MHz BW) 26dB/ 99% OBW

Mode of EUT: Tx 802.11n(40 MHz)
Test Port: Temporary antenna connector

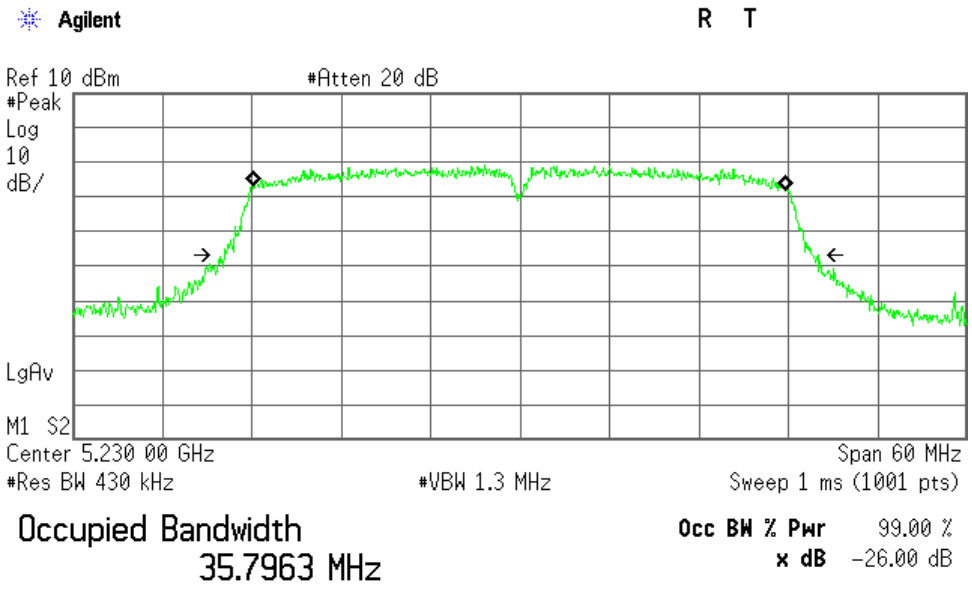
| Channel | Frequency (MHz) | 26dB OBW (MHz) | 99% OBW (MHz) |
|---|---|---|---|
| 38 | 5190 | 40.641 | 35.799 |
| 46 | 5230 | 39.469 | 35.796 |
| 54 | 5270 | 40.043 | 35.777 |
| 62 | 5310 | 40.216 | 35.883 |
| 102 | 5510 | 39.963 | 35.843 |
| 134 | 5670 | 39.673 | 35.813 |

802.11n (40 MHz) 38ch (5190 MHz)



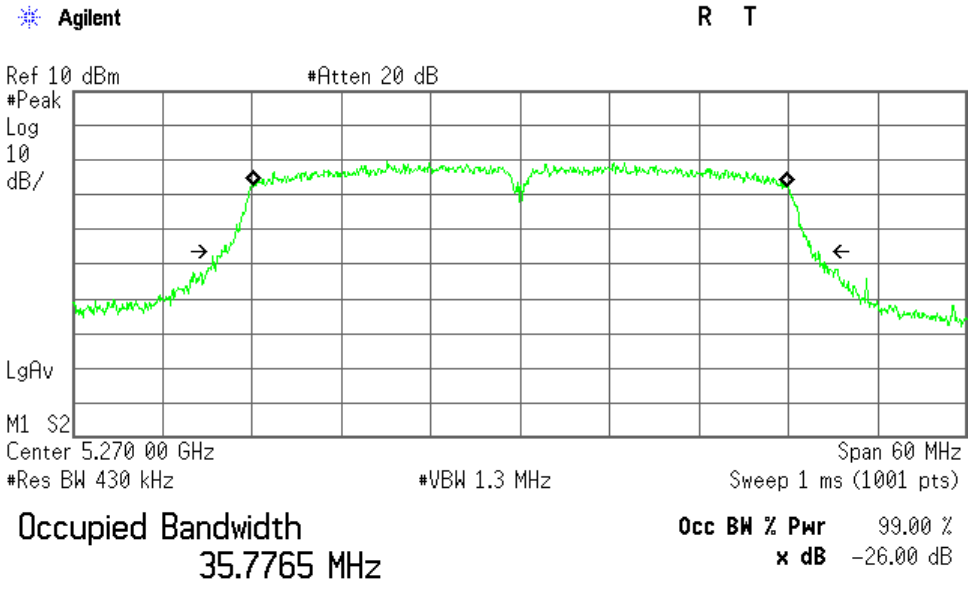

**Transmit Freq Error** -27.274 kHz
**Occupied Bandwidth** 40.641 MHz

802.11n (40 MHz) 46ch (5230 MHz)



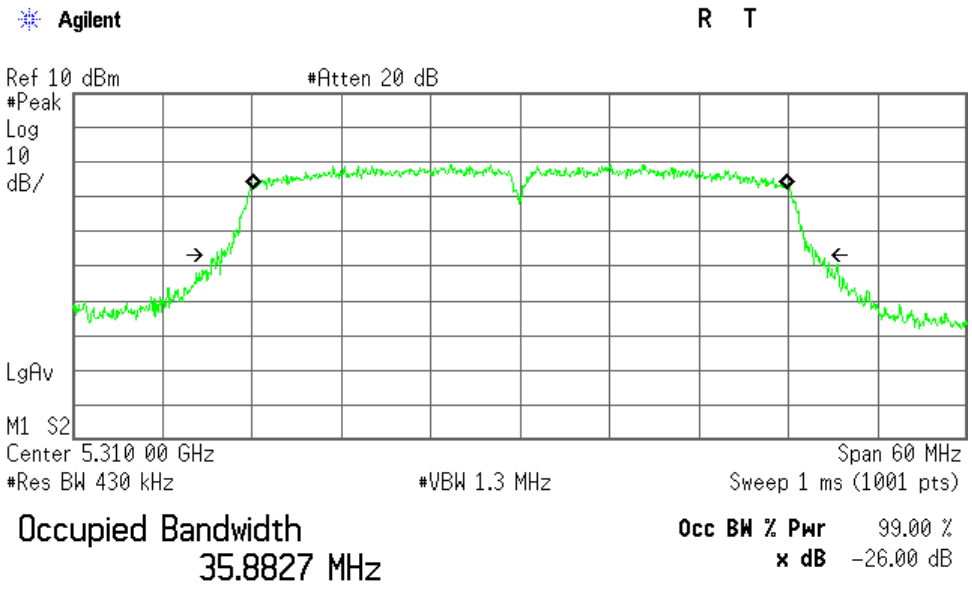

**Transmit Freq Error** -51.136 kHz
**Occupied Bandwidth** 39.469 MHz

802.11n (40 MHz) 54ch (5270 MHz)



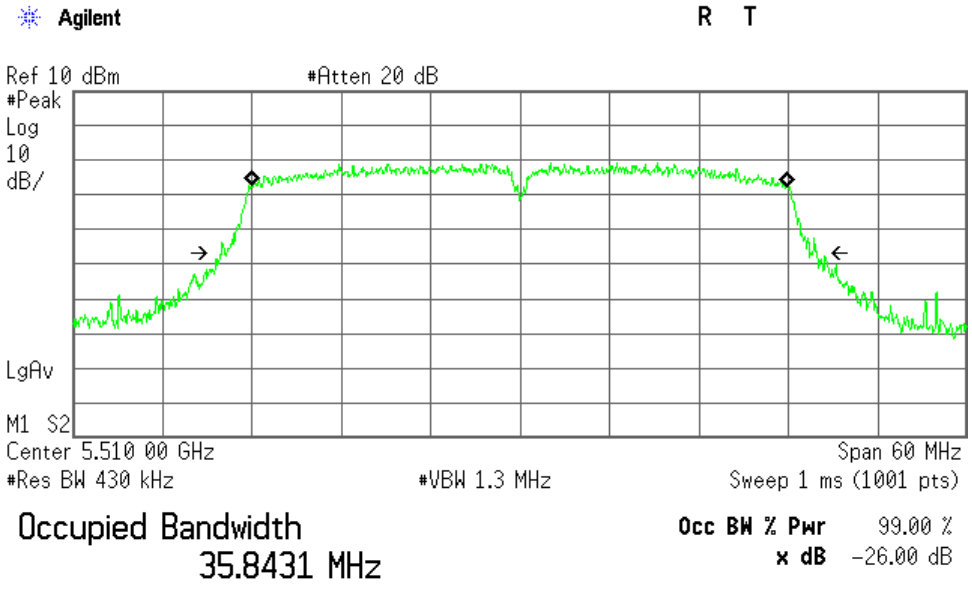

**Transmit Freq Error** -11.574 kHz
**Occupied Bandwidth** 40.043 MHz

802.11n (40 MHz) 62ch (5310 MHz)



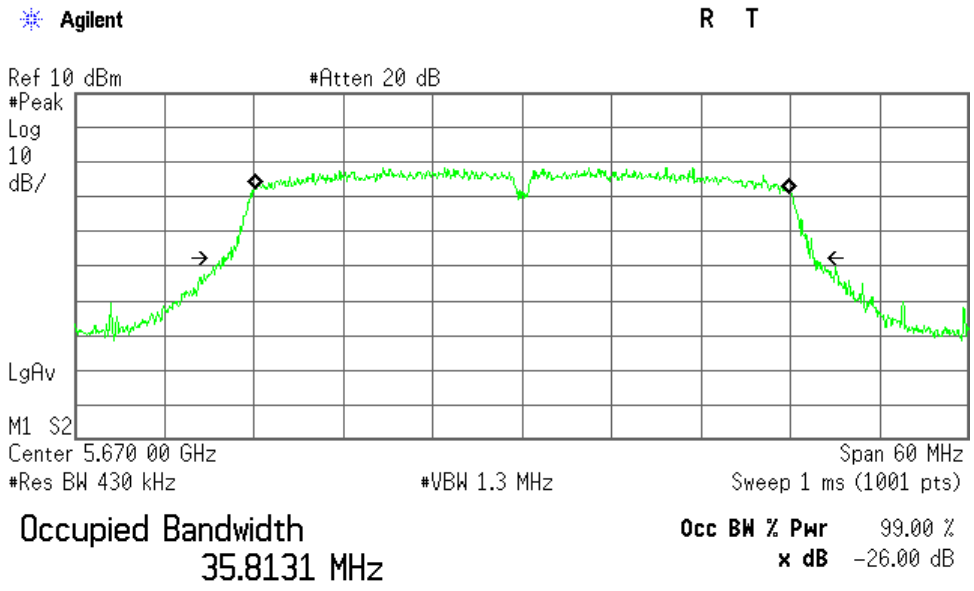

**Transmit Freq Error** -921.560 Hz
**Occupied Bandwidth** 40.216 MHz

802.11n (40 MHz) 102ch (5510 MHz)




**Transmit Freq Error** -55.056 kHz
**Occupied Bandwidth** 39.963 MHz

802.11n (40 MHz) 134ch (5670 MHz)



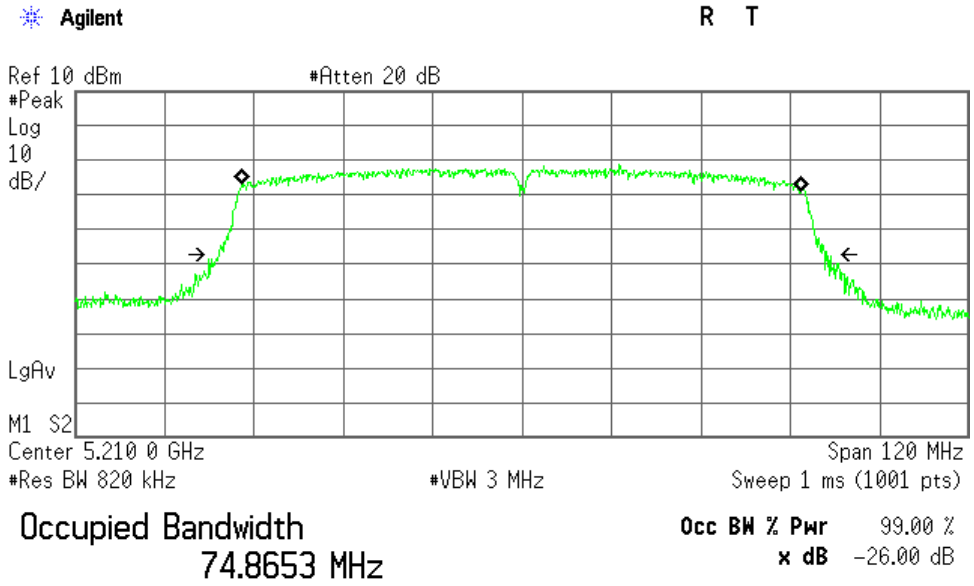

| | |
|---|---|
| **Transmit Freq Error** | -51.092 kHz |
| **Occupied Bandwidth** | 39.673 MHz |

### 7.1.4.4 802.11ac (80 MHz BW) 26dB/ 99% OBW

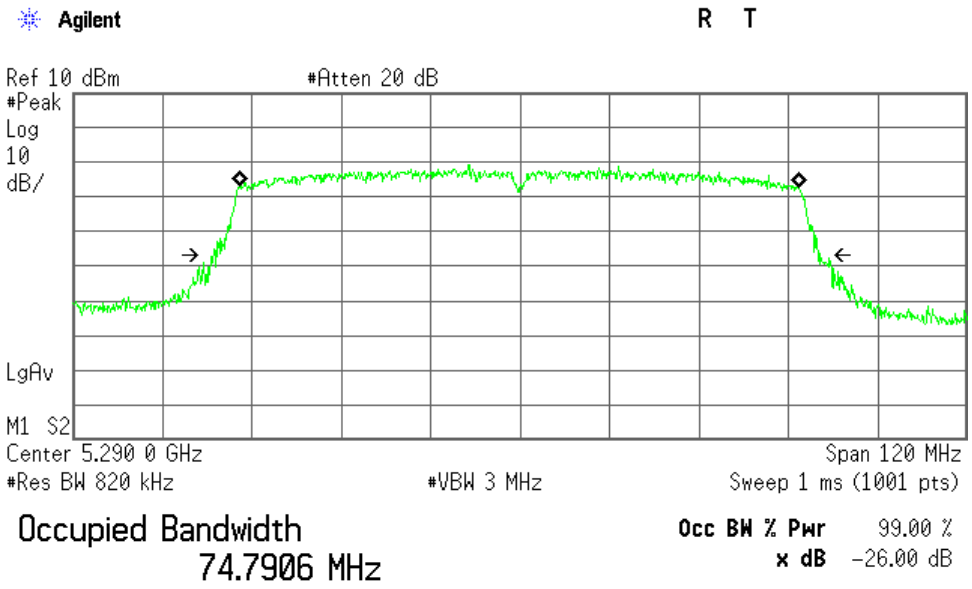
Mode of EUT: Tx 802.11ac(80 MHz)
Test Port: Temporary antenna connector

| Channel | Frequency (MHz) | 26dB OBW (MHz) | 99% OBW (MHz) |
|---|---|---|---|
| 42 | 5210 | 81.711 | 74.865 |
| 58 | 5290 | 81.452 | 74.791 |
| 106 | 5530 | 82.019 | 74.738 |
| 122 | 5610 | 82.136 | 74.833 |

802.11ac (80 MHz) 42ch (5210 MHz)

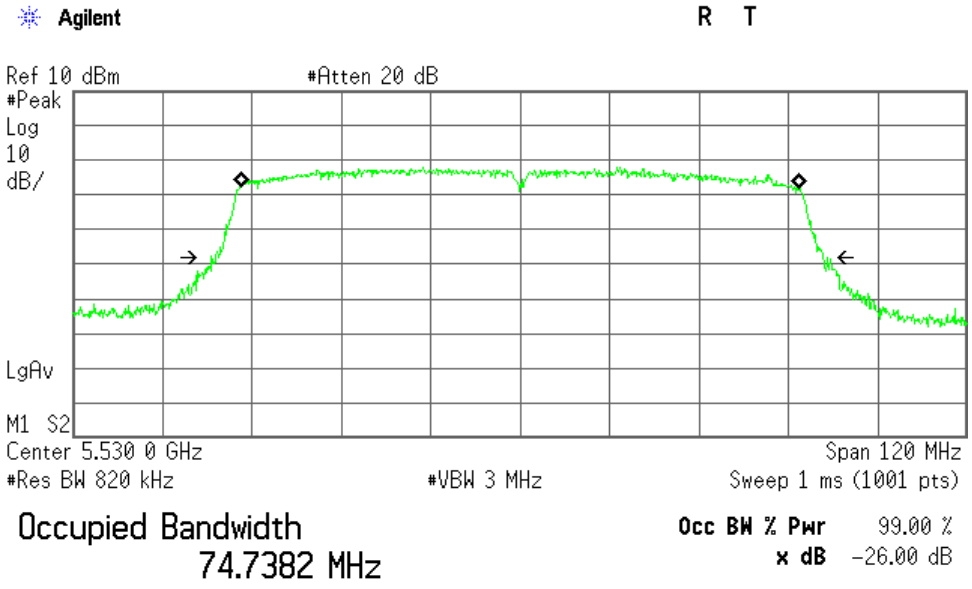


802.11ac (80 MHz) 58ch (5290 MHz)



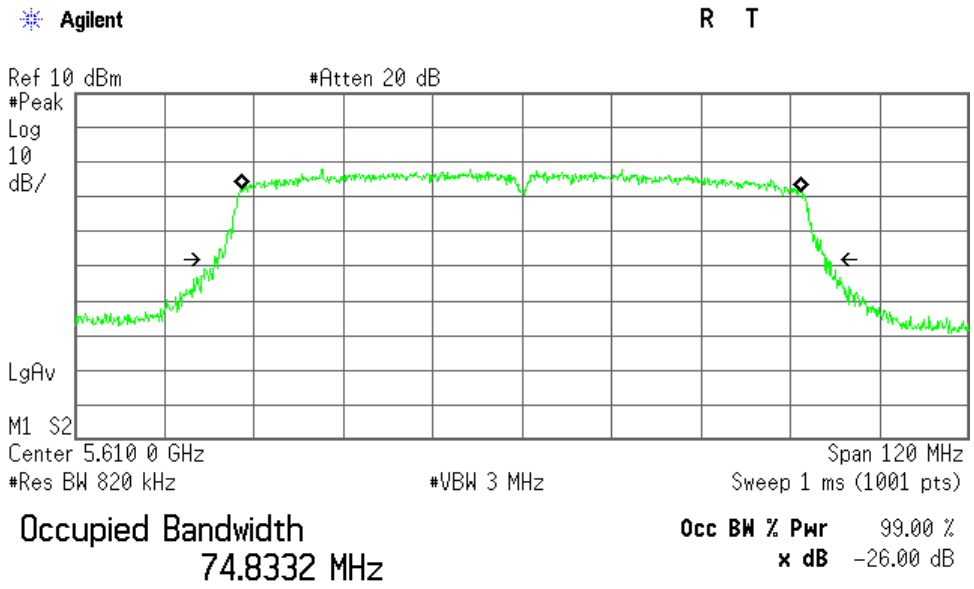

**Transmit Freq Error** −105.099 kHz
**Occupied Bandwidth** 81.452 MHz

802.11ac (80 MHz) 106ch (5530 MHz)




**Transmit Freq Error** −93.732 kHz
**Occupied Bandwidth** 82.019 MHz

802.11ac (80 MHz) 122ch (5610 MHz)




| | |
|---|---|
| **Transmit Freq Error** | -122.211 kHz |
| **Occupied Bandwidth** | 82.136 MHz |

## 7.2 Maximum Conducted Output Power

For the requirements, ☑ - Applicable [ ☑ - Tested. ☐ - Not tested by applicant request. ]
☐ - Not Applicable

### 7.2.1 Test Results

For the standard, ☑ - **Passed** ☐ - **Failed** ☐ - **Not judged**

Min. Limit Margin 13.64 dB at 5280.0 MHz

Remarks : Worst case is 802.11a channel 56.

Max Output Power 10.31 dB at 5180.0 MHz

Remarks : Worst case is 802.11a, channel 36.

Uncertainty of Measurement Results ± 0.9 dB(2σ)

### 7.2.2 Test Instruments

| Shielded Room S4 | | | | |
|---|---|---|---|---|
| **Type** | **Model** | **Serial No. (ID)** | **Manufacturer** | **Cal. Due** |
| Power Meter | ML2495A | 1423001 (B-16) | Anritsu | 2016/07/16 |
| Power Sensor | MA2411B | 1339136 (B-18) | Anritsu | 2016/07/16 |
| Spectrum Analyzer | E4446A | US44300388 (A-39) | Agilent | 2016/08/11 |
| Attenuator | 54A-10 | W5675 (D-28) | Weinschel | 2016/08/16 |
| RF Cable | SUCOFLEX102 | 14253/2 (C-52) | HUBER+SUHNER | 2016/08/16 |

NOTE : The calibration interval of the above test instruments is 12 months.

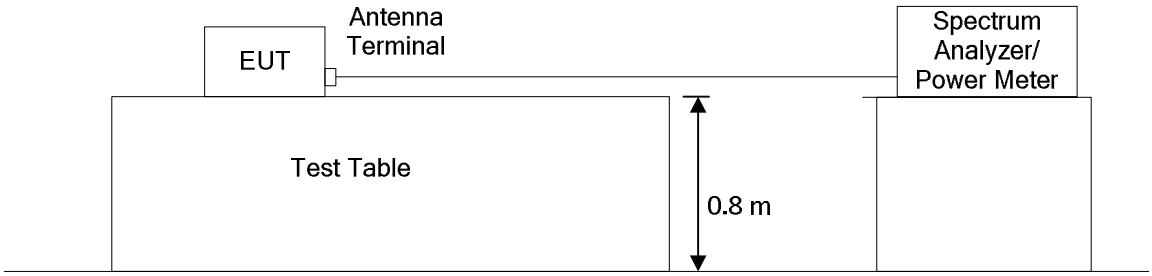
### 7.2.3 Test Method and Test Setup (Diagrammatic illustration)

The maximum conducted output power measurements were carried out connecting to the power meter and the pulse power sensor or spectrum analyzer listed above.

Measurement Method:
1) WLAN 20 MHz/40 MHz BW mode
   KDB 789033 D02 E.3.a) Method PM (Measurement using an RF average power meter)
2) WLAN 80 MHz BW mode
   KDB 789033 D02 E.2.d) Method SA-2 (trace averaging across on and off times of the EUT transmissions, followed by duty cycle correction)

The EUT transmits non-continuously therefore the duty cycle measurements were performed.
The measurements of duty cycle and transmission duration were performed connecting to the spectrum analyzer in accordance with KDB 789033 D02 Method B.2. as follows;
Span: Zero/ RBW: 8 MHz/ VBW ≥ 8 MHz/ Sweep: Auto/ Detector: Peak

(referred documentation is No. G70364M)



### 7.2.4 Test Data

Test Date : September 28, 2015
Temp.: 25°C, Humi: 58%

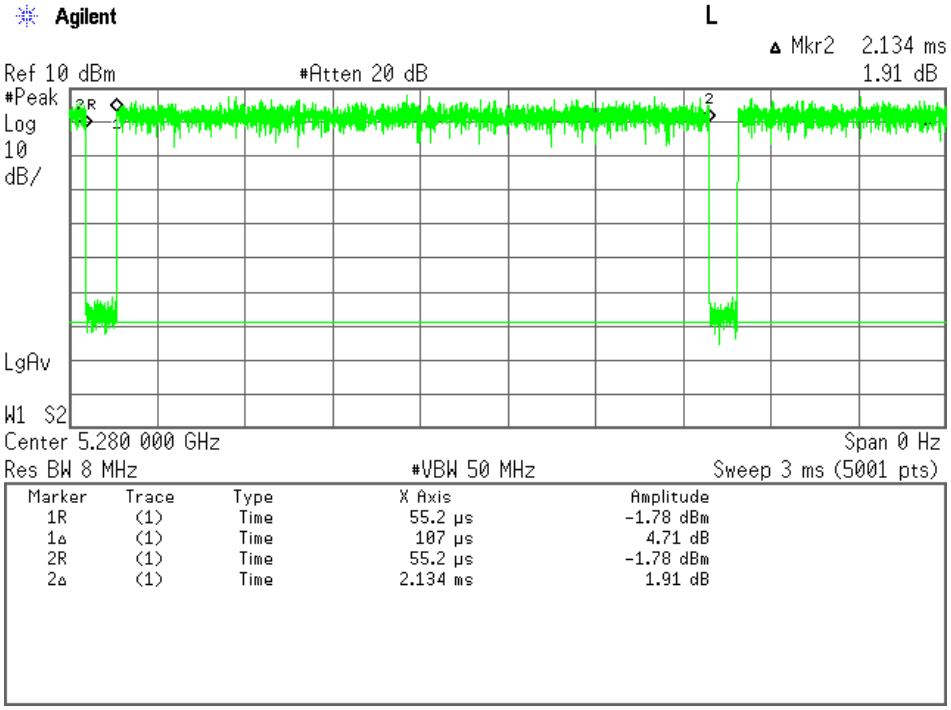
#### 7.2.4.1 802.11a Maximum conducted output power

Mode of EUT: Tx Mode (802.11a)
Test Port: Temporary antenna connector

| Channel | Frequency (MHz) | Correction Factor(dB) | Meter Reading(dBm) | Power (dBm) | EBW (MHz) | Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| 36 | 5180 | 10.41 | -0.10 | 10.31 | 18.476 | 24.00 | 13.69 |
| 44 | 5220 | 10.41 | -0.28 | 10.13 | 18.575 | 24.00 | 13.87 |
| 48 | 5240 | 10.41 | -0.37 | 10.04 | 18.551 | 24.00 | 13.96 |
| 52 | 5260 | 10.42 | -0.42 | 10.00 | 18.635 | 23.70 | 13.70 |
| 56 | 5280 | 10.42 | -0.36 | 10.06 | 18.623 | 23.70 | 13.64 |
| 64 | 5320 | 10.42 | -0.50 | 9.92 | 18.663 | 23.71 | 13.79 |
| 100 | 5500 | 10.44 | -0.76 | 9.68 | 18.584 | 23.69 | 14.01 |
| 116 | 5580 | 10.45 | -0.84 | 9.61 | 18.723 | 23.72 | 14.11 |
| 140 | 5700 | 10.45 | -0.95 | 9.50 | 18.621 | 23.70 | 14.20 |

The test results (Power) is calculated as follows;
For 36 channel (5180 MHz)
Power = Correction Factor + Meter Reading = 10.41 + (-0.10) = 10.31 dBm
Correction Factor = cable loss + 10 dB attenuator + Duty Factor
Duty Factor at 802.11a/ TX rate 6 Mbps is 0.22 dB
Frequency range 5150 MHz to 5250 MHz Limitation is lesser of 24 dBm(250 mW).
Frequency range 5250 MHz to 5350 MHz and 5470 MHz to 5725 MHz Limitation is lesser of 24 dBm(250 mW) or 11 dBm + 10log EBW.

Duty Cycle Plot




Duty Factor = 10 log ((Duty Cycle)/(Burst On-period))= 10 log (2134/(2134-107.0)) = 0.22 dB

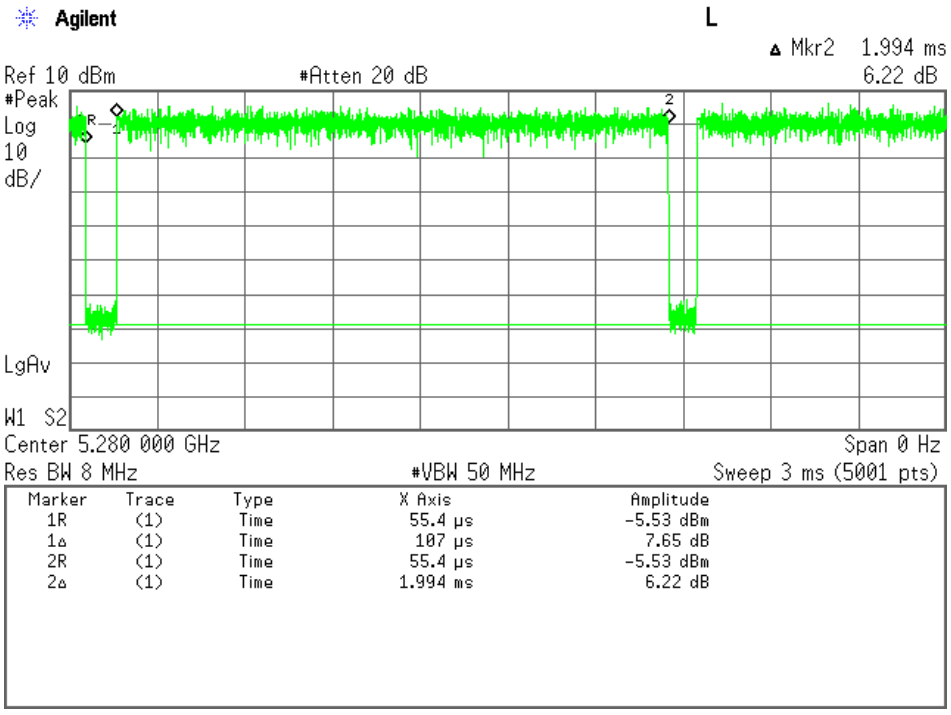
### 7.2.4.2 802.11n (20 MHz BW) Maximum conducted output power

Mode of EUT: Tx Mode (802.11n: 20 MHz)
Test Port: Temporary antenna connector

| Channel | Frequency (MHz) | Correction Factor(dB) | Meter Reading(dBm) | Power (dBm) | EBW (MHz) | Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|---|---|
| 36 | 5180 | 10.43 | -1.41 | 9.02 | 19.580 | 24.00 | 14.98 |
| 44 | 5220 | 10.43 | -1.60 | 8.83 | 19.481 | 24.00 | 15.17 |
| 48 | 5240 | 10.43 | -1.65 | 8.78 | 19.462 | 24.00 | 15.22 |
| 52 | 5260 | 10.44 | -1.73 | 8.71 | 19.458 | 23.89 | 15.18 |
| 56 | 5280 | 10.44 | -1.66 | 8.78 | 19.502 | 23.90 | 15.12 |
| 64 | 5320 | 10.44 | -1.78 | 8.66 | 19.397 | 23.88 | 15.22 |
| 100 | 5500 | 10.46 | -2.02 | 8.44 | 19.527 | 23.91 | 15.47 |
| 116 | 5580 | 10.47 | -2.11 | 8.36 | 19.335 | 23.86 | 15.50 |
| 140 | 5700 | 10.47 | -2.21 | 8.26 | 19.583 | 23.92 | 15.66 |

The test results (Power) is calculated as follows;
For 36 channel (5180 MHz)
Power = Correction Factor + Meter Reading = 10.43 + (-1.41) = 9.02 dBm
Correction Factor = cable loss + 10 dB attenuator + Duty Factor
Duty Factor at 802.11n(20 MHz BW) / TX rate 6.5 Mbps is 0.24 dB
Frequency range 5150 MHz to 5250 MHz Limitation is lesser of 24 dBm(250 mW).
Frequency range 5250 MHz to 5350 MHz and 5470 MHz to 5725 MHz Limitation is lesser of 24 dBm(250 mW) or 11 dBm + 10log EBW.

Duty Cycle Plot




Duty Factor = 10 log ((Duty Cycle)/(Burst On-period))= 10 log (1994/(1994-107.0)) = 0.24 dB

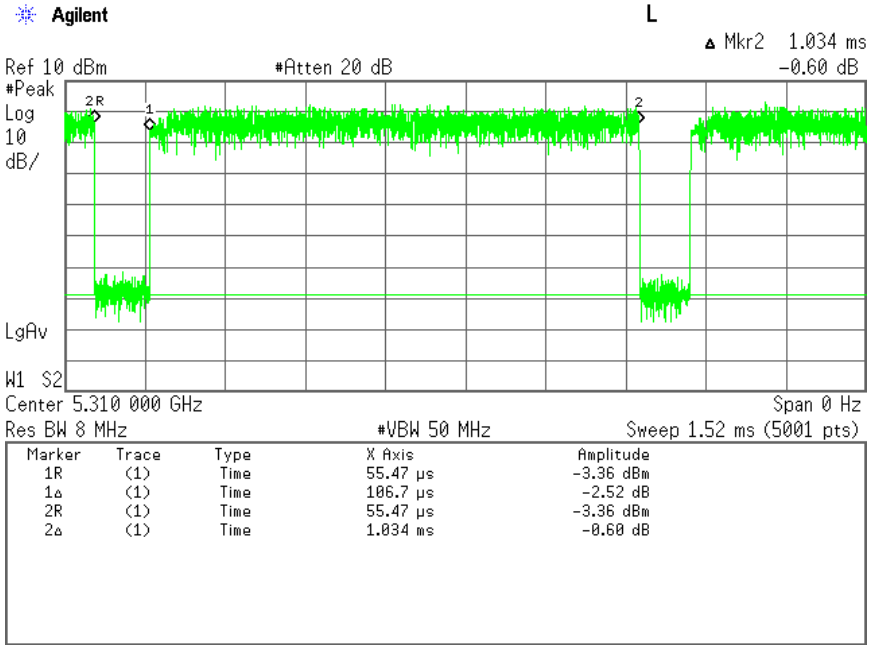
### 7.2.4.3 802.11n (40 MHz BW) Maximum conducted output power

Mode of EUT: Tx Mode (802.11n: 40 MHz)
Test Port: Temporary antenna connector

| Channel | Frequency | Correction | Meter | Power | EBW | Limit | Margin |
|---|---|---|---|---|---|---|---|
| | (MHz) | Factor(dB) | Reading(dBm) | (dBm) | (MHz) | (dBm) | (dB) |
| 38 | 5190 | 10.66 | -1.15 | 9.51 | 40.641 | 24.00 | 14.49 |
| 46 | 5230 | 10.66 | -1.29 | 9.37 | 39.469 | 24.00 | 14.63 |
| 54 | 5270 | 10.67 | -1.44 | 9.23 | 40.043 | 24.00 | 14.77 |
| 62 | 5310 | 10.67 | -1.45 | 9.22 | 40.216 | 24.00 | 14.78 |
| 102 | 5510 | 10.69 | -1.77 | 8.92 | 39.963 | 24.00 | 15.08 |
| 134 | 5670 | 10.70 | -1.87 | 8.83 | 39.673 | 24.00 | 15.17 |

The test results (Power) is calculated as follows;
For 38 channel (5190 MHz)
Power = Correction Factor + Meter Reading = 10.66 + (-1.15) = 9.51 dBm
Correction Factor = cable loss + 10 dB attenuator + Duty Factor
Duty Factor at 802.11n(40 MHz BW) / TX rate 13.5 Mbps is 0.47 dB
Frequency range 5150 MHz to 5250 MHz Limitation is lesser of 24 dBm(250 mW).
Frequency range 5250 MHz to 5350 MHz and 5470 MHz to 5725 MHz Limitation is lesser of 24 dBm(250 mW) or 11 dBm + 10log EBW.

Duty Cycle Plot




Duty Factor = 10 log ((Duty Cycle)/(Burst On-period))= 10 log (1034/(1034-106.7)) = 0.47 dB

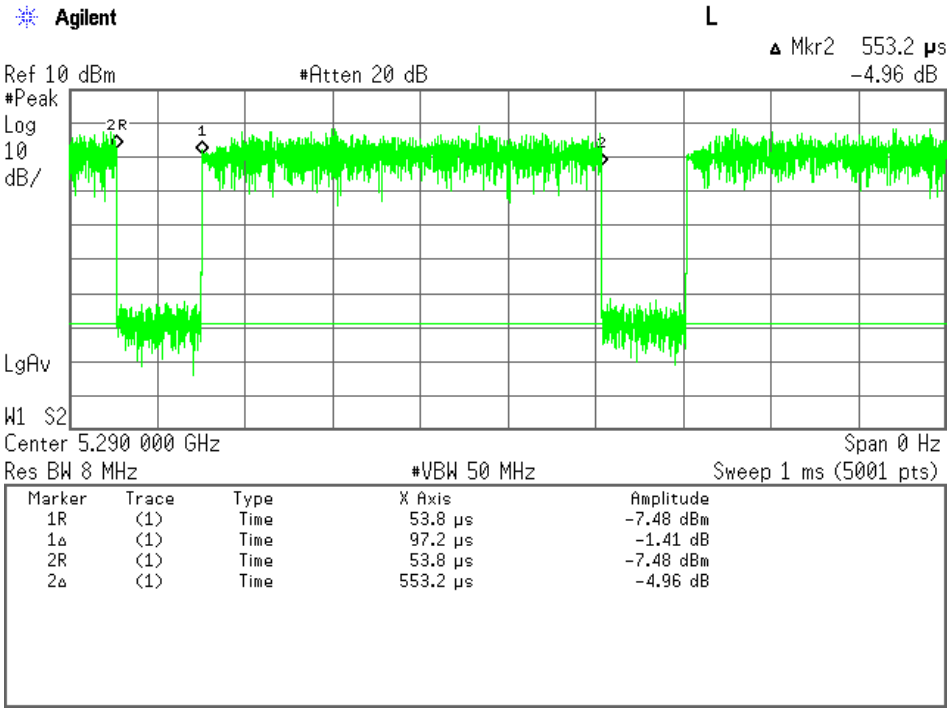
### 7.2.4.4 802.11ac (80 MHz BW) Maximum conducted output power

Mode of EUT: Tx Mode (802.11ac: 80 MHz)
Test Port: Temporary antenna connector

| Channel | Frequency | Correction | Meter | Power | EBW | Limit | Margin |
|---|---|---|---|---|---|---|---|
| | (MHz) | Factor(dB) | Reading(dBm) | (dBm) | (MHz) | (dBm) | (dB) |
| 42 | 5210 | 11.03 | -2.81 | 8.22 | 81.711 | 24.00 | 15.78 |
| 58 | 5290 | 11.04 | -3.10 | 7.94 | 81.452 | 24.00 | 16.06 |
| 106 | 5530 | 11.06 | -3.49 | 7.57 | 82.019 | 24.00 | 16.43 |
| 122 | 5610 | 11.07 | -3.55 | 7.52 | 82.136 | 24.00 | 16.48 |

The test results (Power) is calculated as follows;
For 42 channel (5210 MHz)
Power = Correction Factor + Meter Reading = 11.03 + (-2.81) = 8.22 dBm
Correction Factor = cable loss + 10 dB attenuator + Duty Factor
Duty Factor at 802.11ac(80 MHz BW) / TX rate 29.3 Mbps is 0.84 dB
Frequency range 5150 MHz to 5250 MHz Limitation is lesser of 24 dBm(250 mW).
Frequency range 5250 MHz to 5350 MHz and 5470 MHz to 5725 MHz Limitation is lesser of 24 dBm(250 mW) or 11 dBm + 10log EBW.

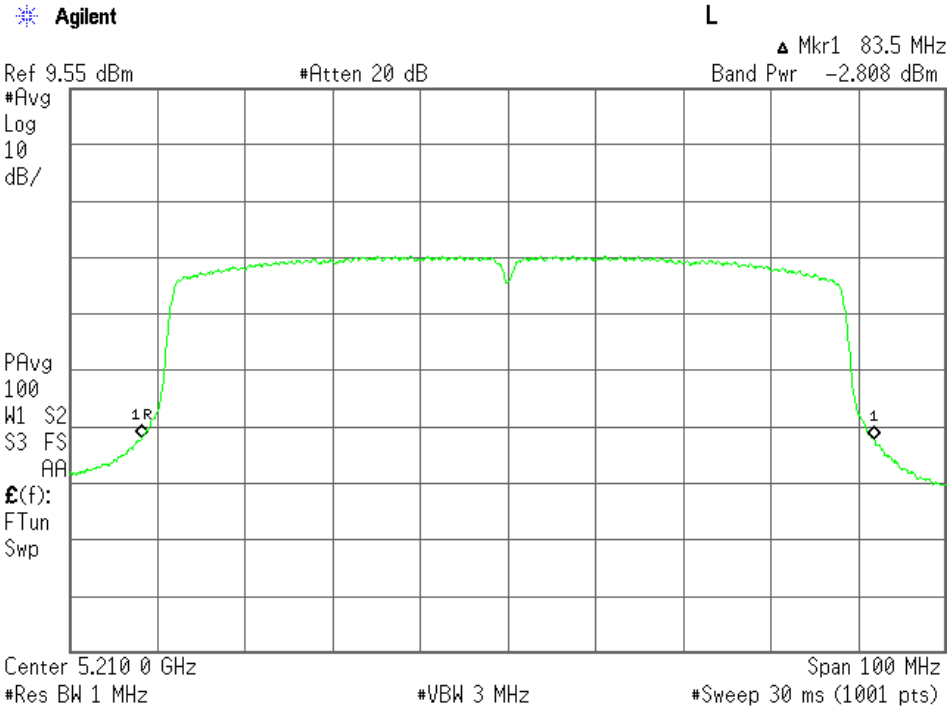
Duty Cycle Plot



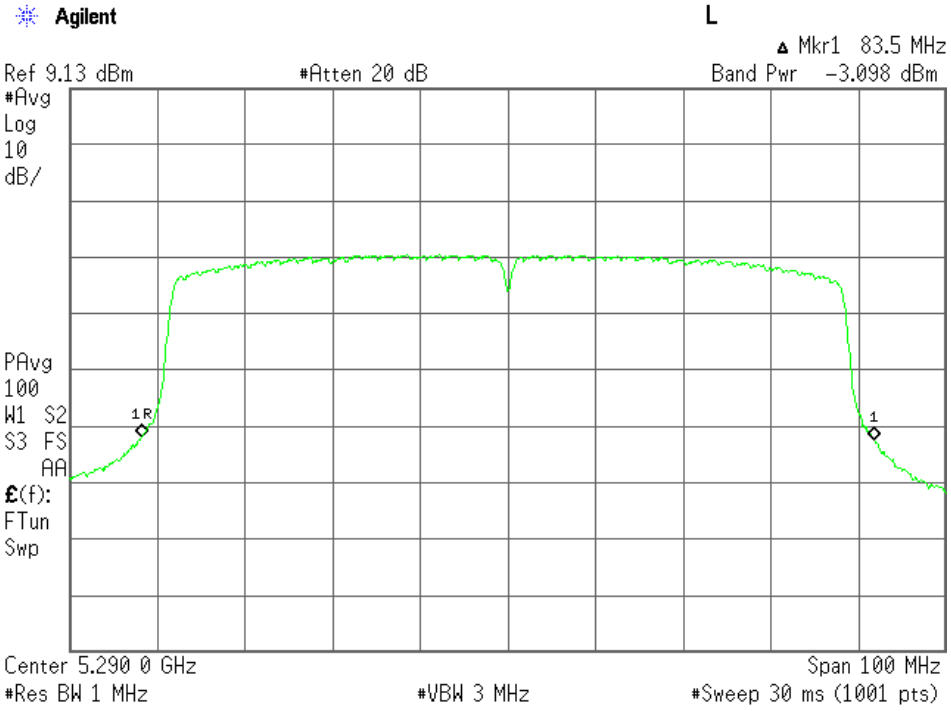

Duty Factor = 10 log ((Duty Cycle)/(Burst On-period))= 10 log (553.2/(553.2-97.2)) = 0.84 dB

Output Power Test Plot

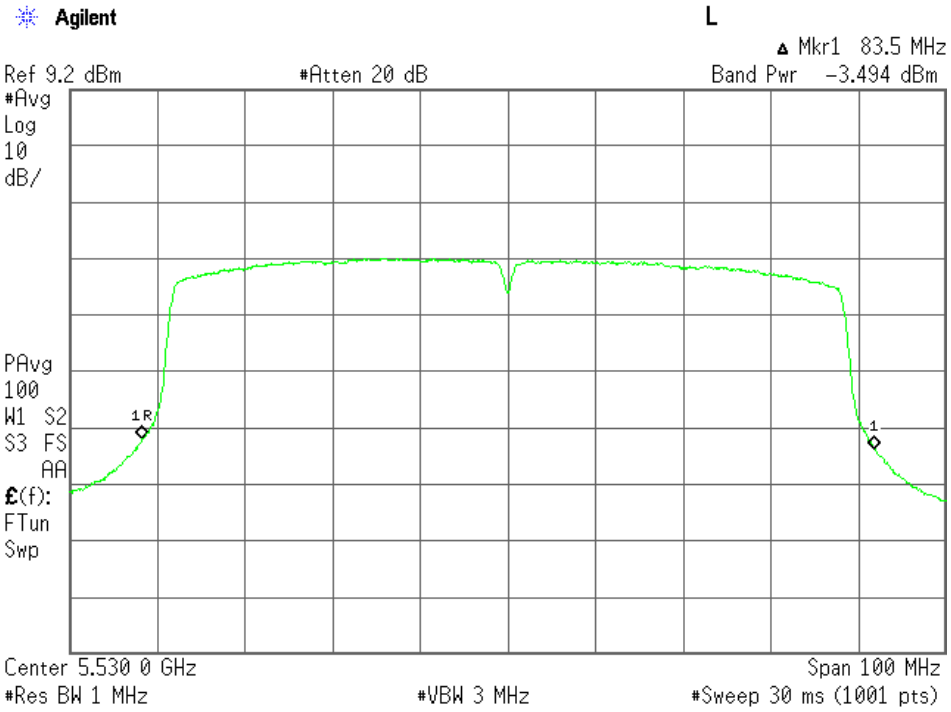
802.11ac (80 MHz BW) 42ch (5210 MHz)



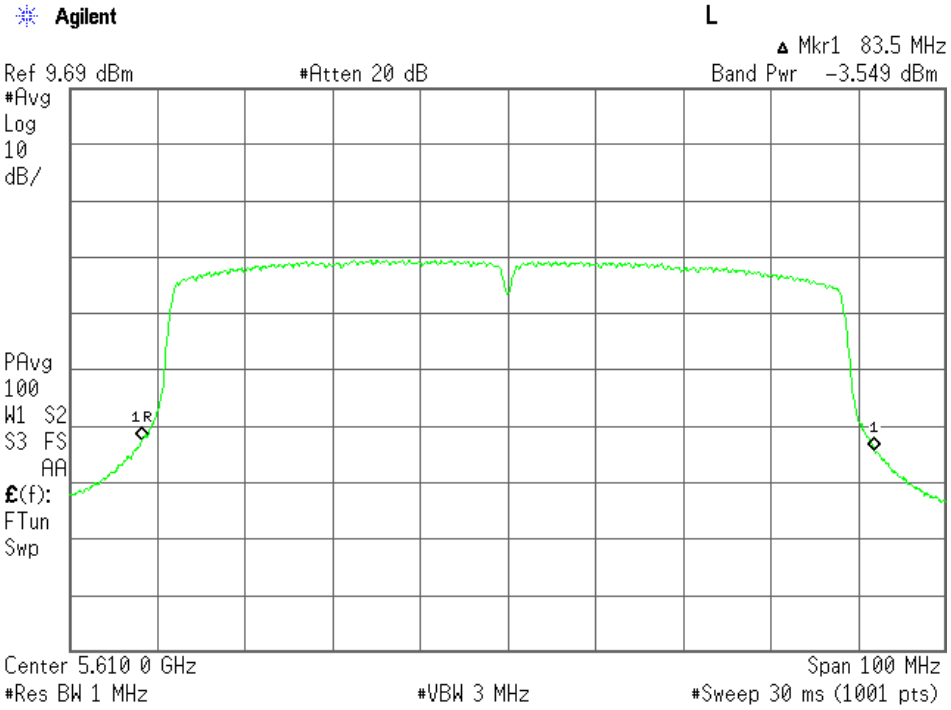

802.11ac (80 MHz BW) 58ch (5290 MHz)



802.11ac (80 MHz BW) 106ch (5530 MHz)




802.11ac (80 MHz BW) 122ch (5610 MHz)



## 7.3 Peak Power Spectral Density

For the requirements, ☑ - Applicable [ ☑ - Tested. ☐ - Not tested by applicant request. ]
☐ - Not Applicable

### 7.3.1 Test Results

For the standard, ☑ - **Passed** ☐ - **Failed** ☐ - **Not judged**

Min. Limit Margin 10.95 dB at 5280.0 MHz

Uncertainty of Measurement Results ± 1.7 dB(2σ)

Remarks : Worst case is 802.11a channel 56.

### 7.3.2 Test Instruments

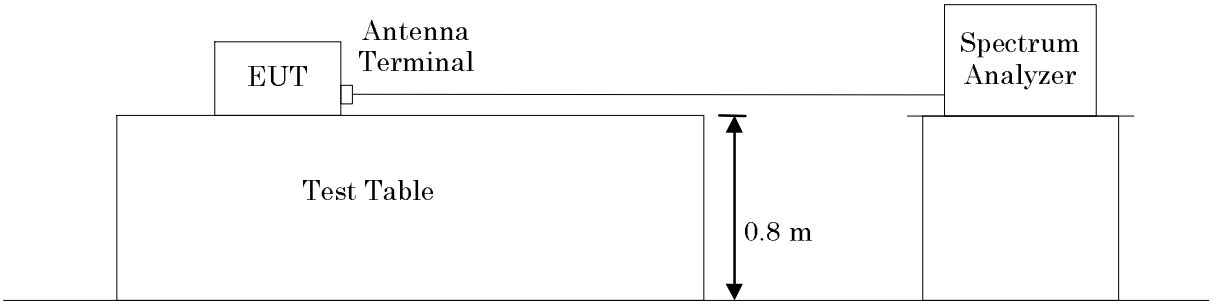
| Shielded Room S4 | | | | |
|---|---|---|---|---|
| **Type** | **Model** | **Serial No. (ID)** | **Manufacturer** | **Cal. Due** |
| Spectrum Analyzer | E4446A | US44300388 (A-39) | Agilent | 2016/08/11 |
| Attenuator | 54A-10 | W5675 (D-28) | Weinschel | 2016/08/16 |
| RF Cable | SUCOFLEX102 | 14253/2 (C-52) | HUBER+SUHNER | 2016/08/16 |

NOTE : The calibration interval of the above test instruments is 12 months.

### 7.3.3 Test Method and Test Setup (Diagrammatic illustration)

The peak power spectral density measurements were carried out connecting to the spectrum analyzer. The EUT transmits non-continuously therefore the spectrum analyzer was set in accordance with KDB 789033 D02 Method SA-3 as follows;.

Span: encompass the EBW/ RBW: 1 MHz/ VBW ≥ 3 MHz/ Sweep: Time: 100 msec.( enough to be short)/
Number Sweep Points: 1001 pts ( ≥2*Span/RBW)/
Detector: RMS(power averaging)/ Trace Mode: Max. Hold
The peak marker function in the analyzer was use for finding the peak point.
(referred documentation is No. G70364M)



### 7.3.4 Test Data

Test Date : September 29, 2015
Temp.: 25C, Humi: 40%

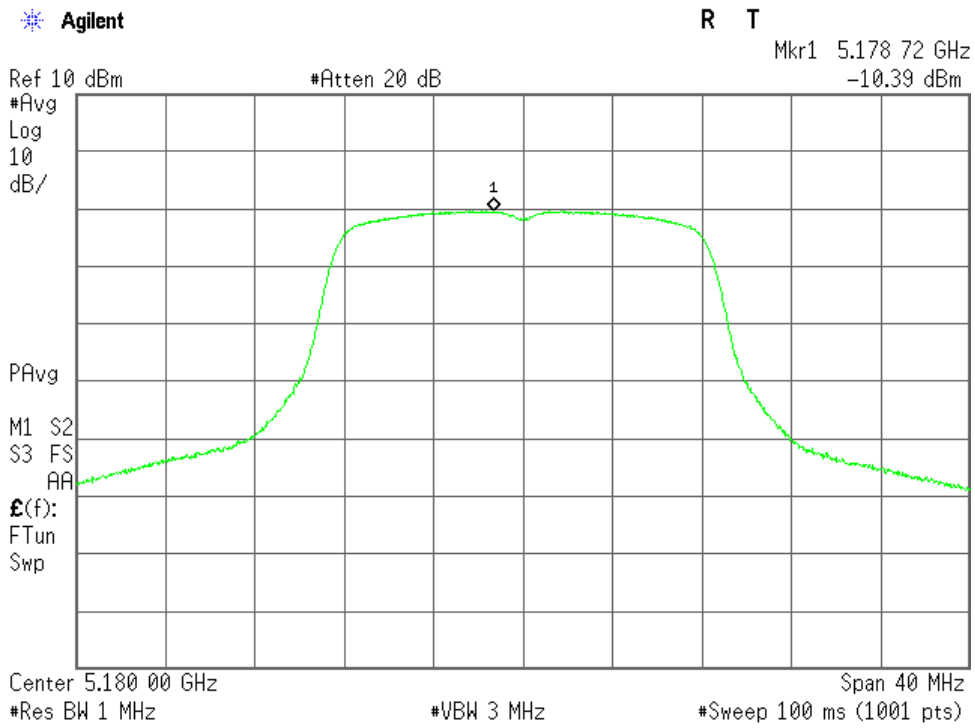
#### 7.3.4.1 802.11a Peak power spectral density

Mode of EUT: Tx Mode (802.11a)
Test Port: Temporary antenna connector

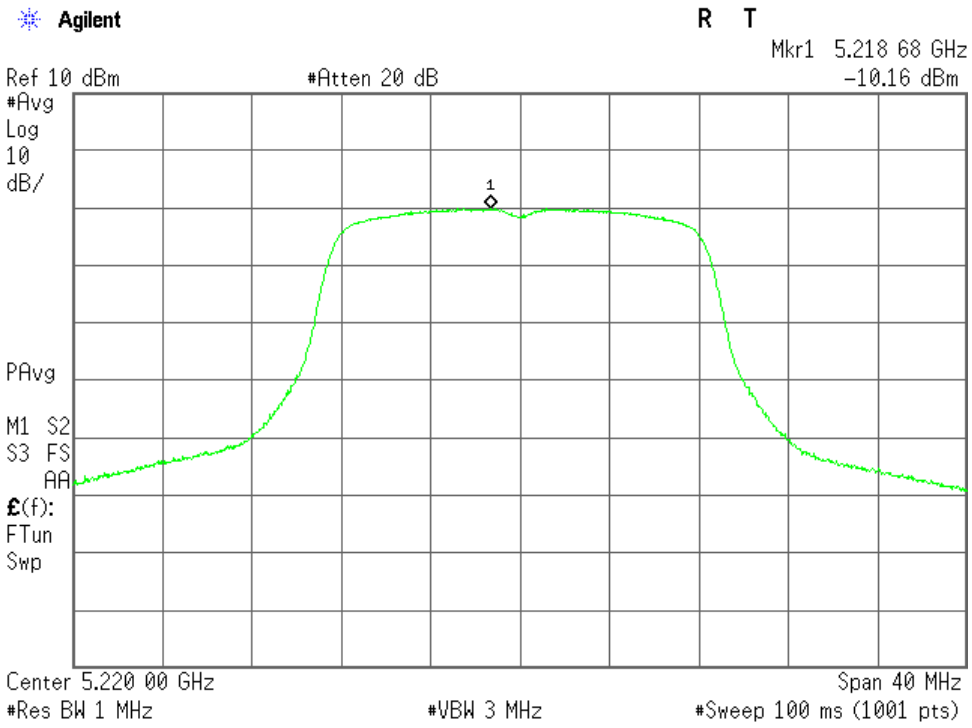
| Channel | Frequency | Correction | Meter | PPSD | Limit | Margin |
|---|---|---|---|---|---|---|
| | (MHz) | Factor(dB) | Reading(dBm) | (dBm) | (dBm) | (dB) |
| 36 | 5180 | 10.19 | -10.39 | -0.20 | 11.00 | 11.20 |
| 44 | 5220 | 10.19 | -10.16 | 0.03 | 11.00 | 10.97 |
| 48 | 5240 | 10.19 | -10.22 | -0.03 | 11.00 | 11.03 |
| 52 | 5260 | 10.20 | -10.16 | 0.04 | 11.00 | 10.96 |
| 56 | 5280 | 10.20 | -10.15 | 0.05 | 11.00 | 10.95 |
| 64 | 5320 | 10.20 | -10.22 | -0.02 | 11.00 | 11.02 |
| 100 | 5500 | 10.22 | -10.47 | -0.25 | 11.00 | 11.25 |
| 116 | 5580 | 10.23 | -10.80 | -0.57 | 11.00 | 11.57 |
| 140 | 5700 | 10.23 | -11.48 | -1.25 | 11.00 | 12.25 |

The test results (PPSD) is calculated as follows;
For 36 channel (5180 MHz)
PPSD = Correction Factor + Meter Reading = 10.19 + (-10.39) = -0.20 dBm
Correction Factor = cable loss + 10 dB attenuator

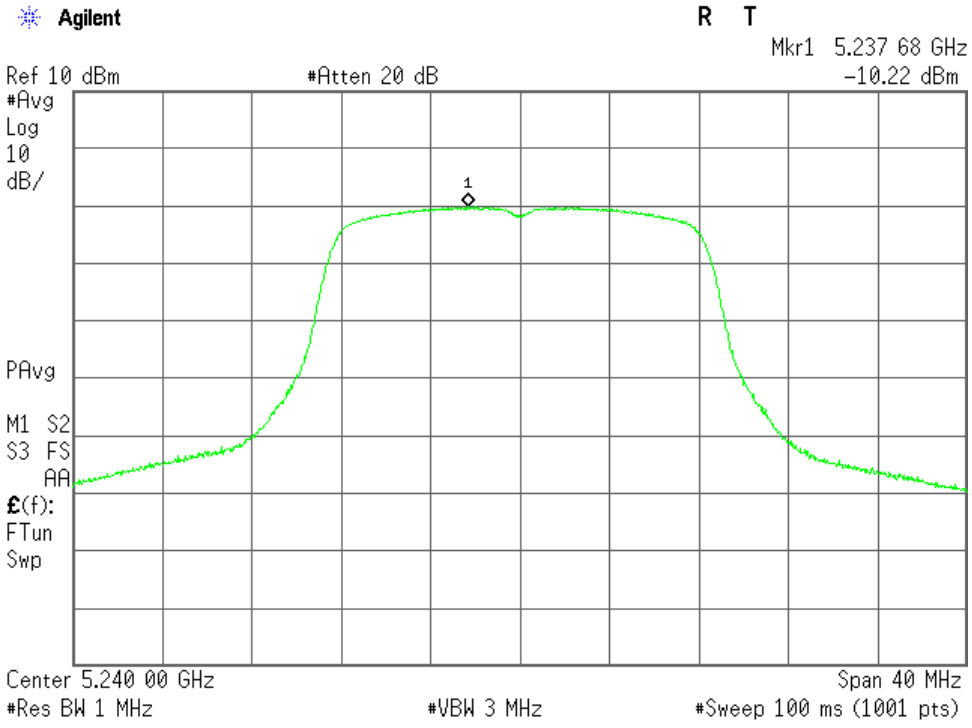
802.11a 36ch (5180 MHz)



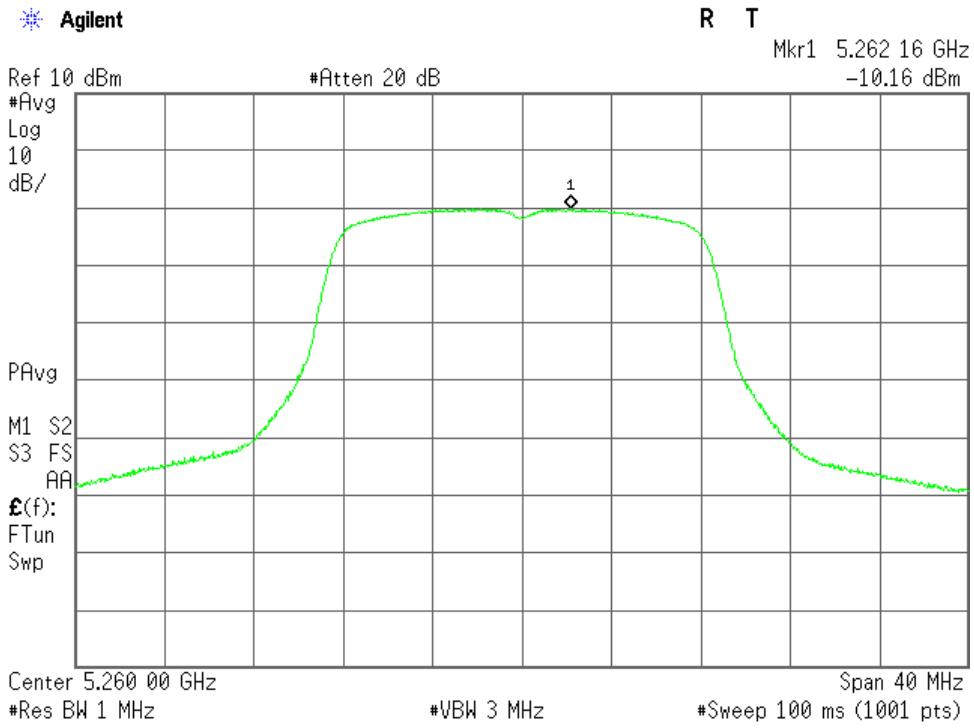
802.11a 44ch (5220 MHz)



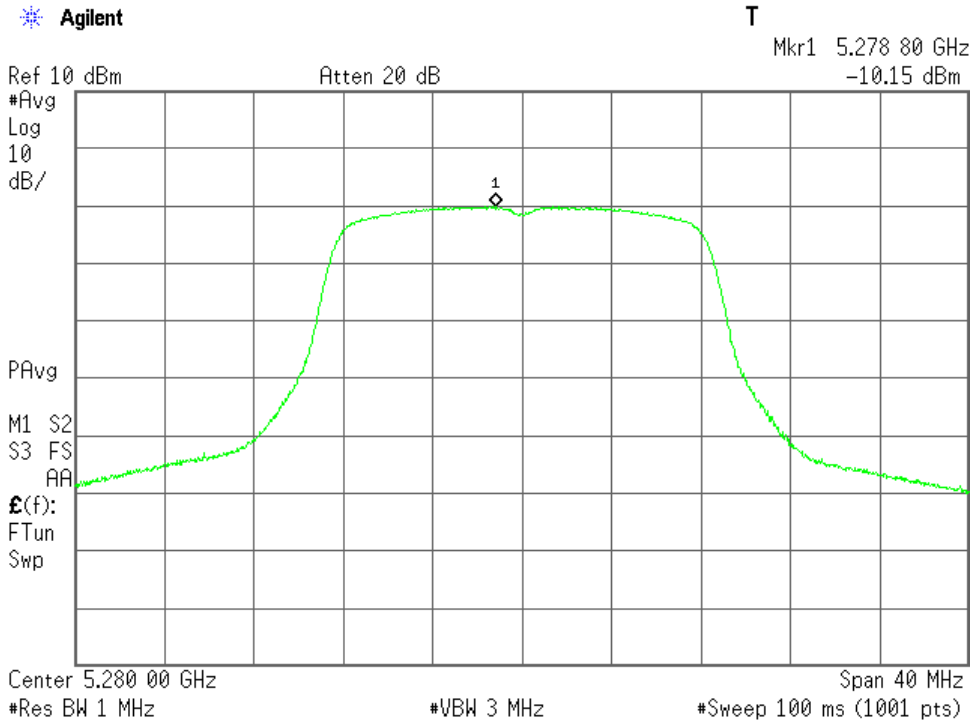

802.11a 48ch (5240 MHz)



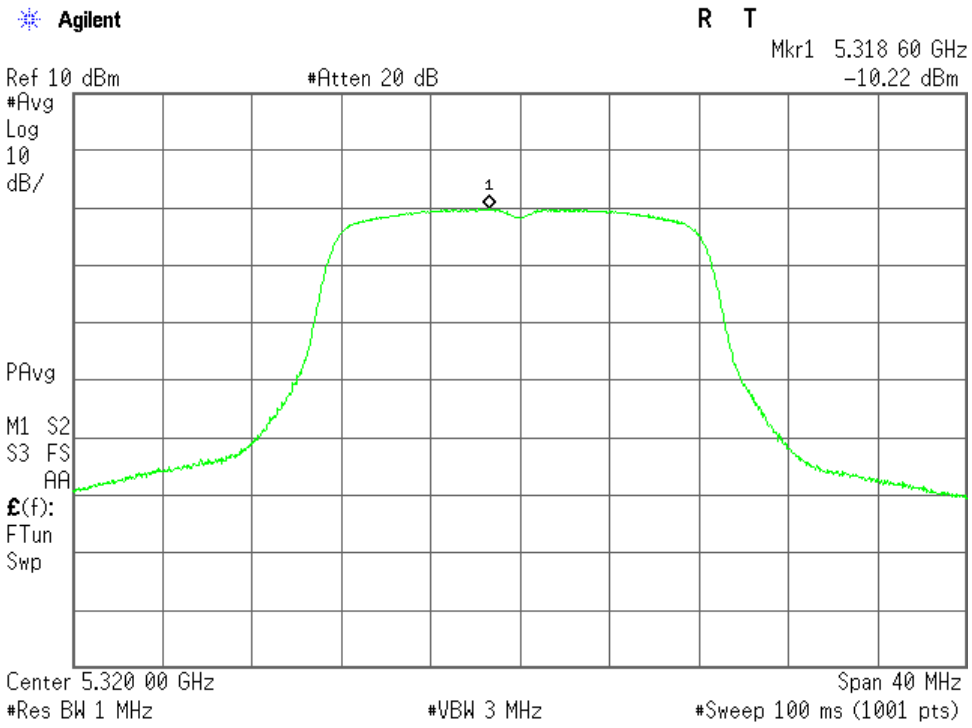
802.11a 52ch (5260 MHz)



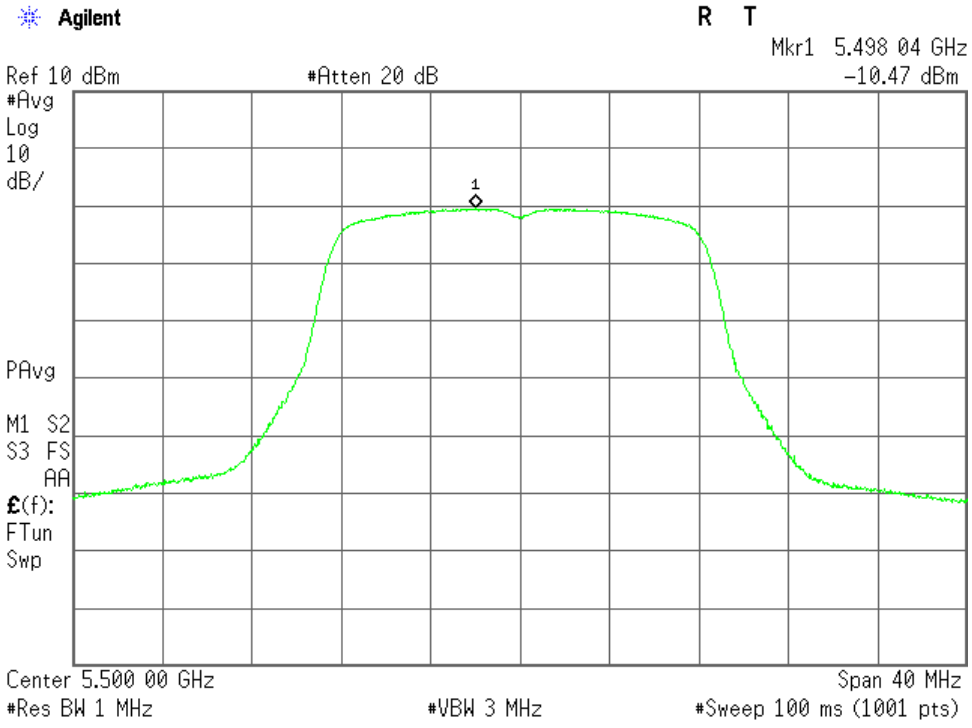

802.11a 56ch (5280 MHz)



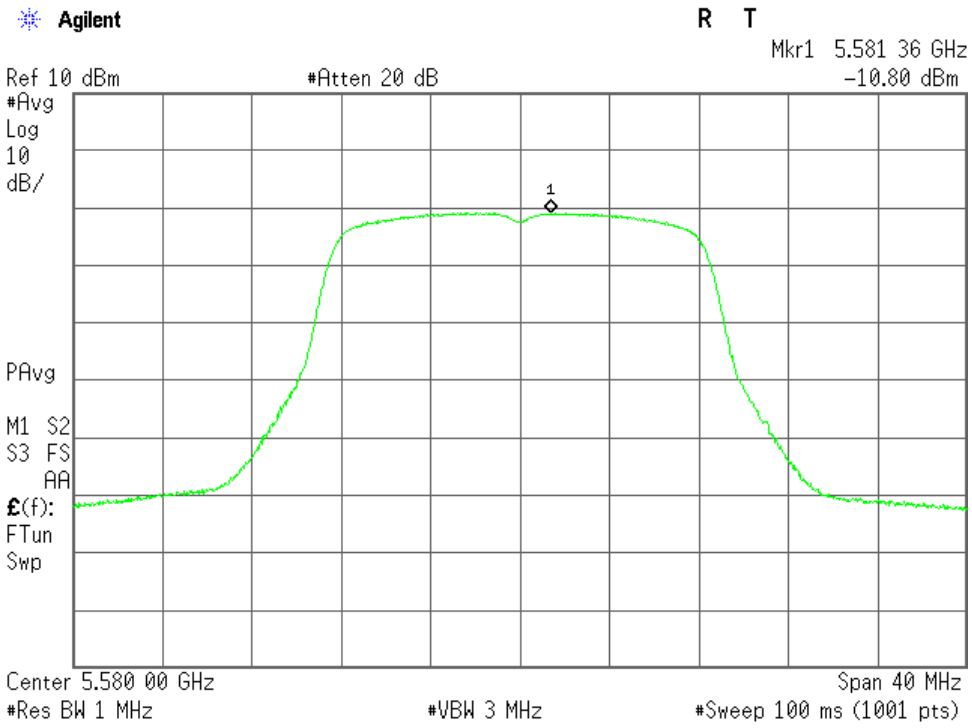
802.11a 64ch (5320 MHz)



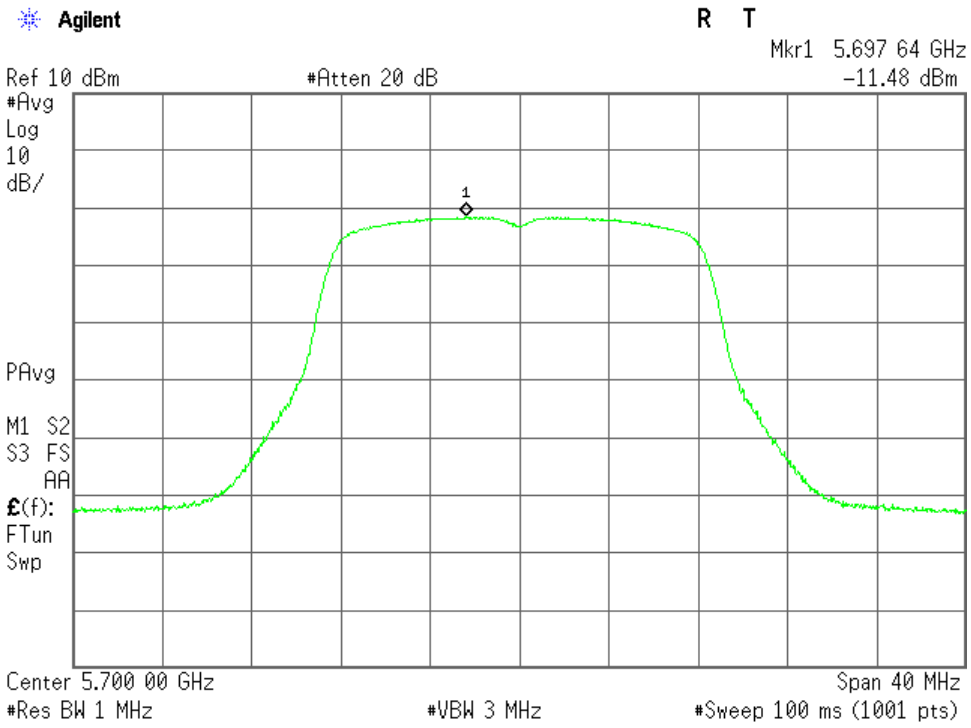

802.11a 100ch (5500 MHz)



802.11a 116ch (5580 MHz)




802.11a 140ch (5700 MHz)



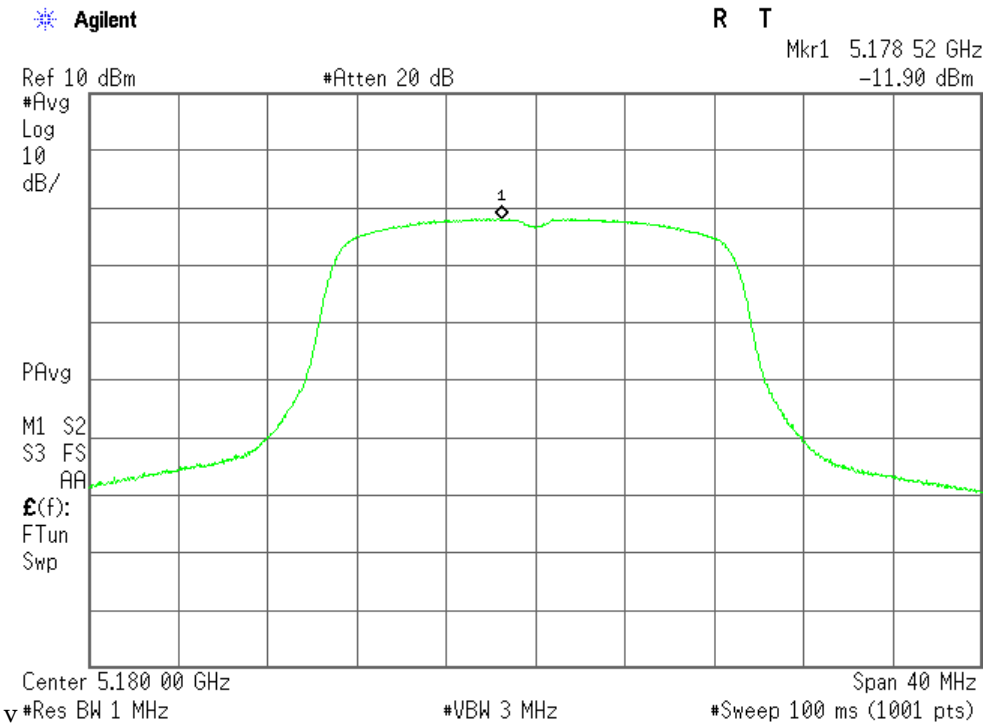
### 7.3.4.2 802.11n (20 MHz BW) Peak power spectral density

Mode of EUT: Tx Mode (802.11n: 20 MHz)
Test Port: Temporary antenna connector

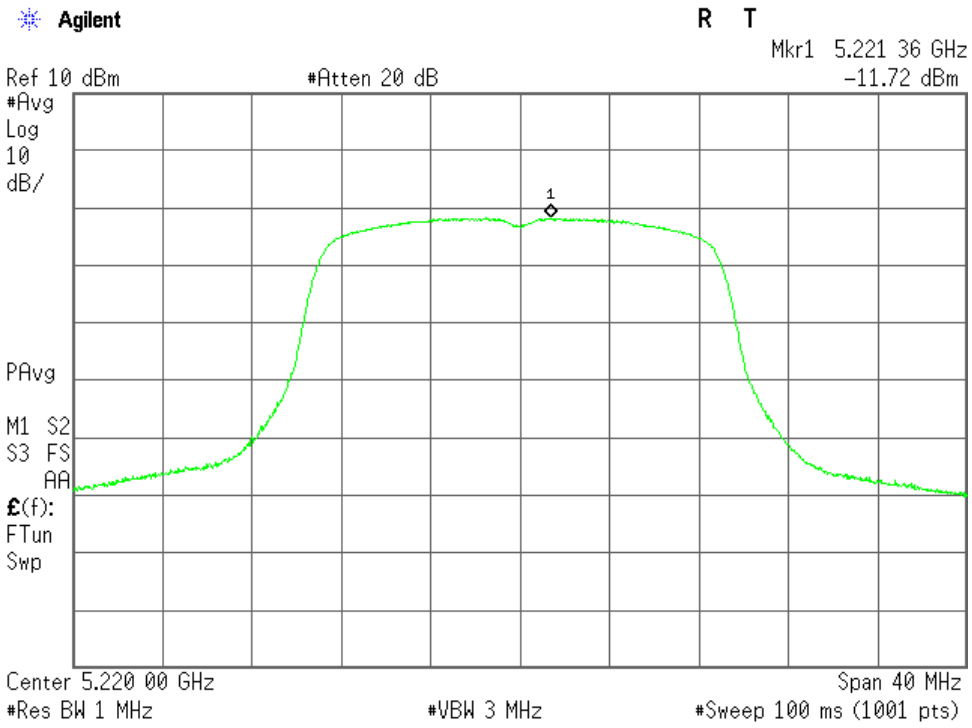
| Channel | Frequency (MHz) | Correction Factor(dB) | Meter Reading(dBm) | PPSD (dBm) | Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|---|
| 36 | 5180 | 10.19 | -11.90 | -1.71 | 11.00 | 12.71 |
| 44 | 5220 | 10.19 | -11.72 | -1.53 | 11.00 | 12.53 |
| 48 | 5240 | 10.19 | -11.66 | -1.47 | 11.00 | 12.47 |
| 52 | 5260 | 10.20 | -11.77 | -1.57 | 11.00 | 12.57 |
| 56 | 5280 | 10.20 | -11.35 | -1.15 | 11.00 | 12.15 |
| 64 | 5320 | 10.20 | -11.42 | -1.22 | 11.00 | 12.22 |
| 100 | 5500 | 10.22 | -11.89 | -1.67 | 11.00 | 12.67 |
| 116 | 5580 | 10.23 | -12.39 | -2.16 | 11.00 | 13.16 |
| 140 | 5700 | 10.23 | -13.08 | -2.85 | 11.00 | 13.85 |

The test results (PPSD) is calculated as follows;
For 36 channel (5180 MHz)
PPSD = Correction Factor + Meter Reading = 10.19 + (-11.90) = -1.71 dBm
Correction Factor = cable loss + 10 dB attenuator

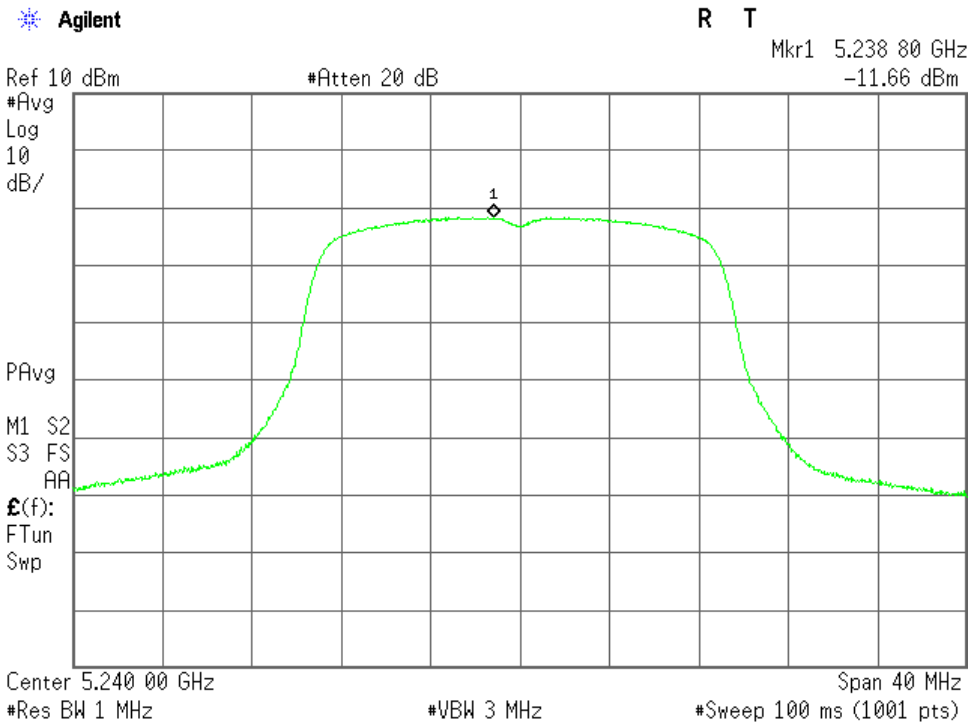
802.11n (20 MHz BW) 36ch (5180 MHz)



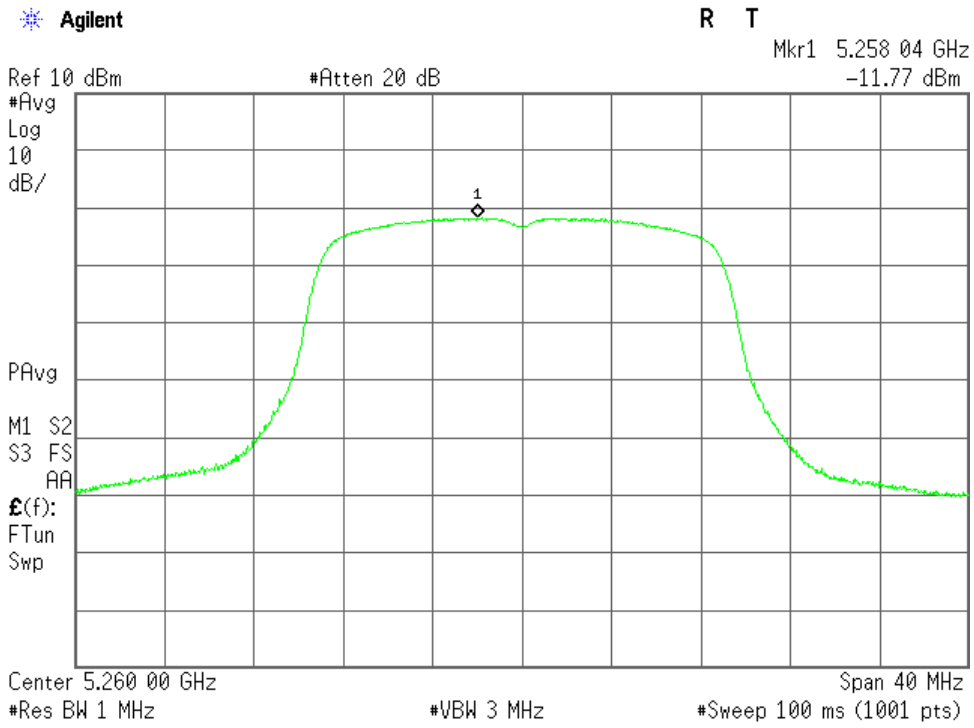
802.11n (20 MHz BW) 44ch (5220 MHz)



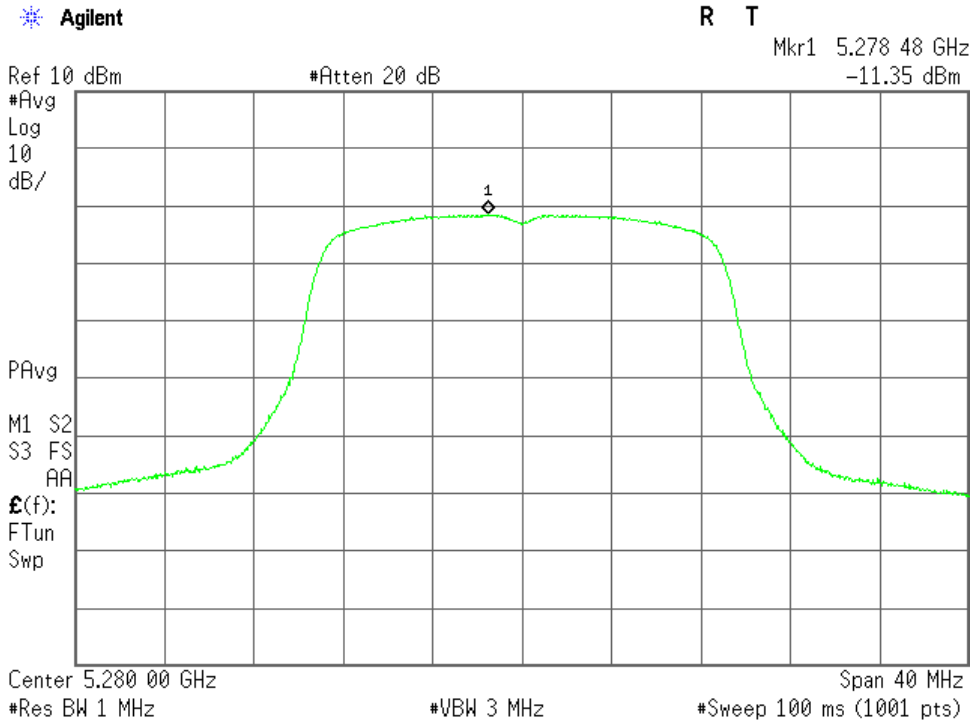

802.11n (20 MHz BW) 48ch (5240 MHz)



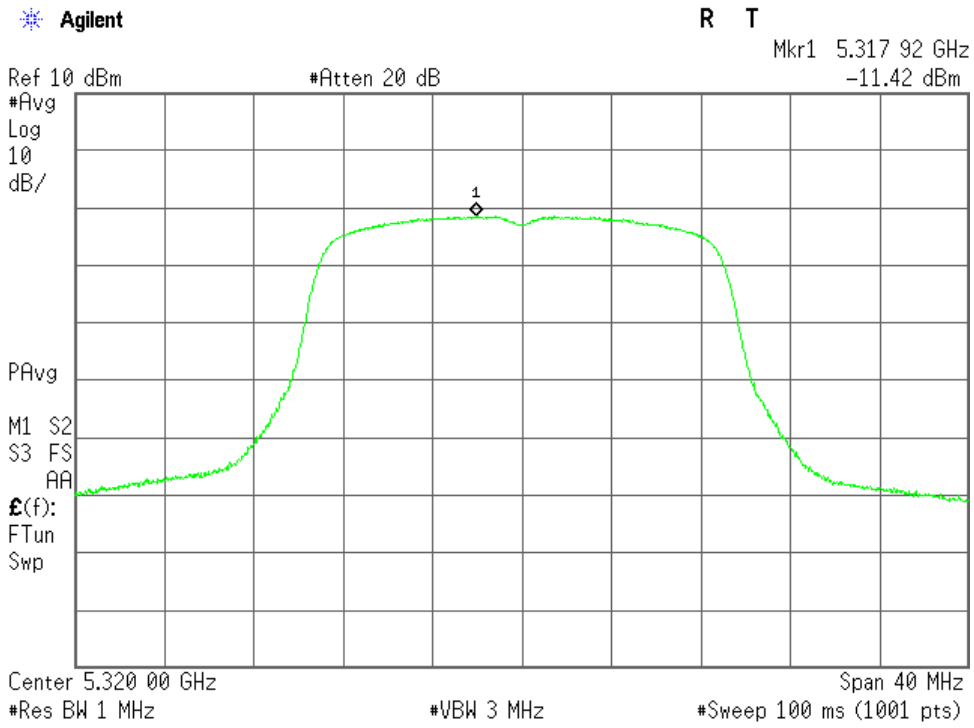
802.11n (20 MHz BW) 52ch (5260 MHz)



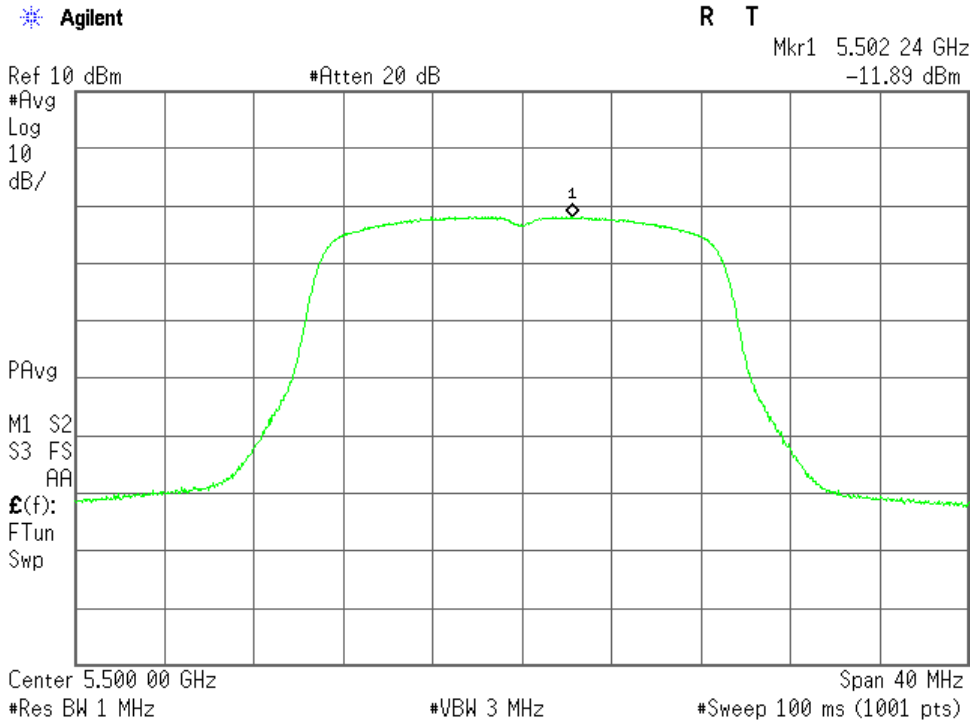

802.11n (20 MHz BW) 56ch (5280 MHz)



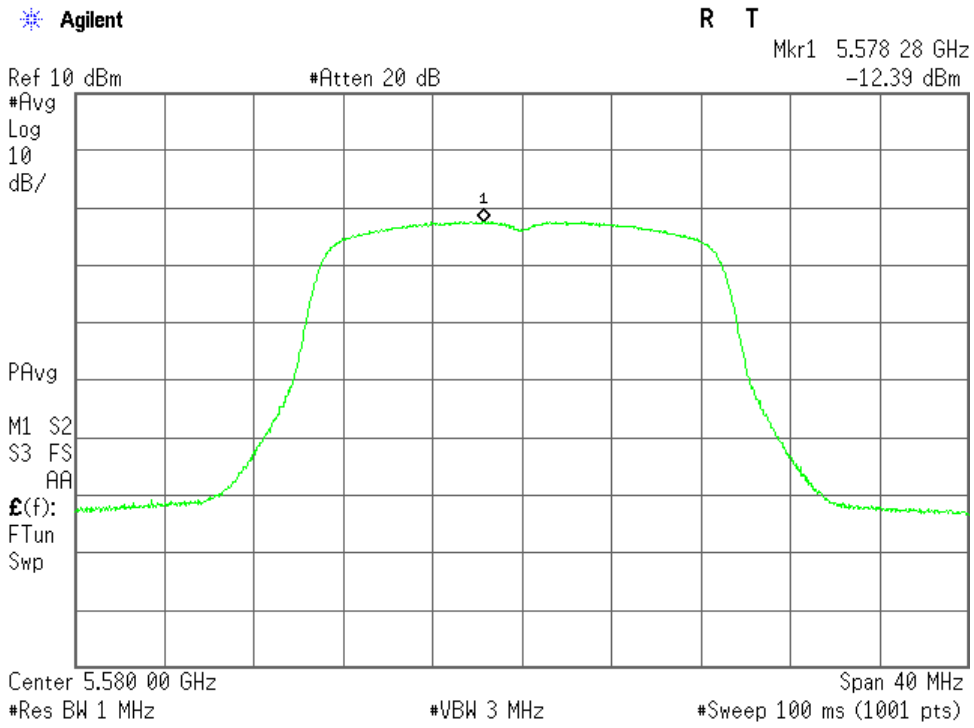
802.11n (20 MHz BW) 64ch (5320 MHz)



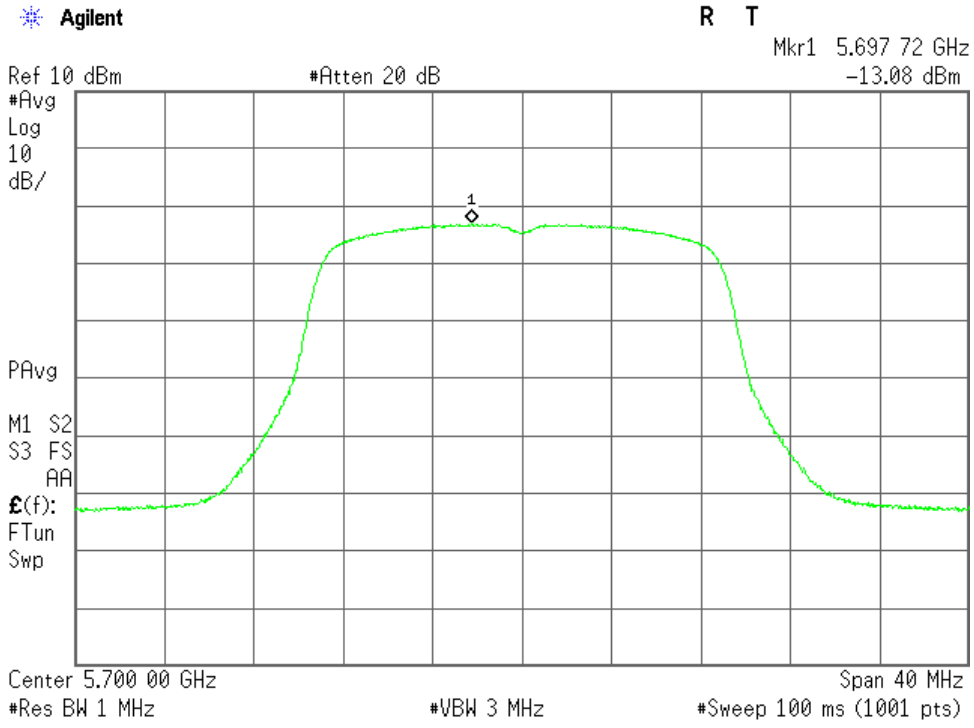

802.11n (20 MHz BW) 100ch (5500 MHz)



802.11n (20 MHz BW) 116ch (5580 MHz)




802.11n (20 MHz) 140ch (5700 MHz)



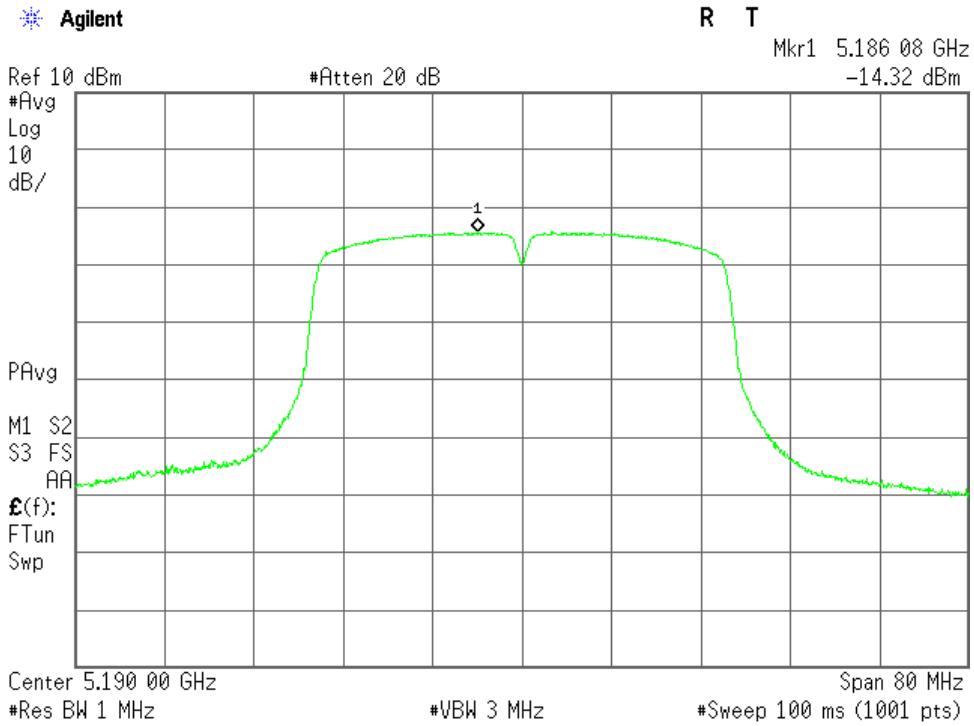
### 7.3.4.3 802.11n (40 MHz BW) Peak power spectral density

Mode of EUT: Tx Mode (802.11n: 40 MHz)
Test Port: Temporary antenna connector

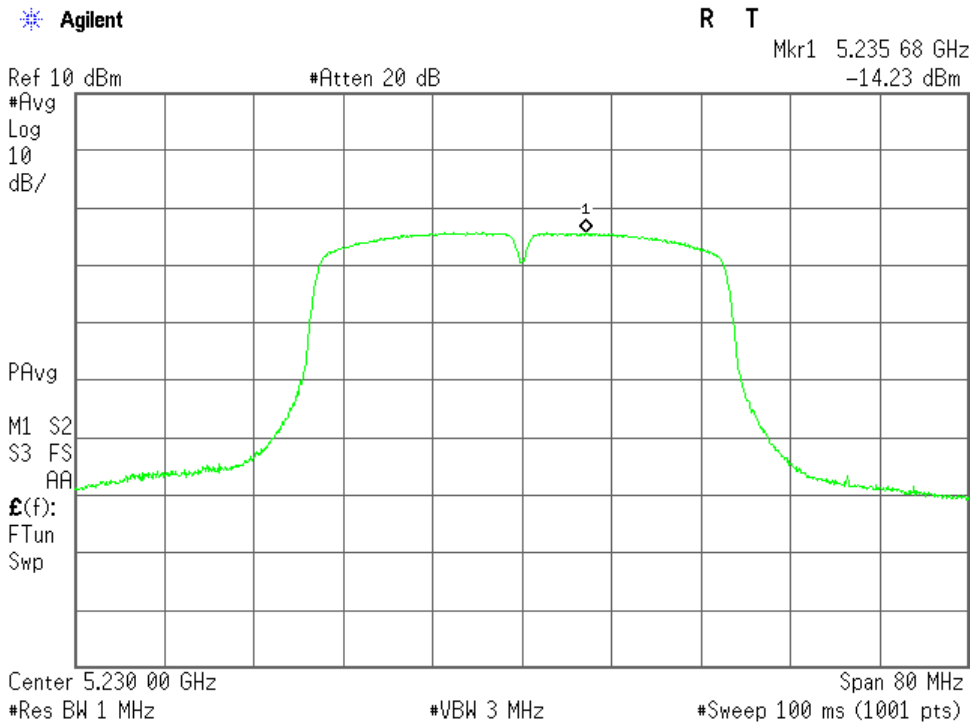
| Channel | Frequency | Correction | Meter | PPSD | Limit | Margin |
|---|---|---|---|---|---|---|
| | (MHz) | Factor(dB) | Reading(dBm) | (dBm) | (dBm) | (dB) |
| 38 | 5190 | 10.19 | -14.32 | -4.13 | 11.00 | 15.13 |
| 46 | 5230 | 10.19 | -14.23 | -4.04 | 11.00 | 15.04 |
| 54 | 5270 | 10.20 | -14.34 | -4.14 | 11.00 | 15.14 |
| 62 | 5310 | 10.20 | -14.14 | -3.94 | 11.00 | 14.94 |
| 102 | 5510 | 10.22 | -14.44 | -4.22 | 11.00 | 15.22 |
| 134 | 5670 | 10.23 | -15.47 | -5.24 | 11.00 | 16.24 |

The test results (PPSD) is calculated as follows;
For 38 channel (5190 MHz)
PPSD = Correction Factor + Meter Reading = 10.19 + (-14.32) = -4.13 dBm
Correction Factor = cable loss + 10 dB attenuator

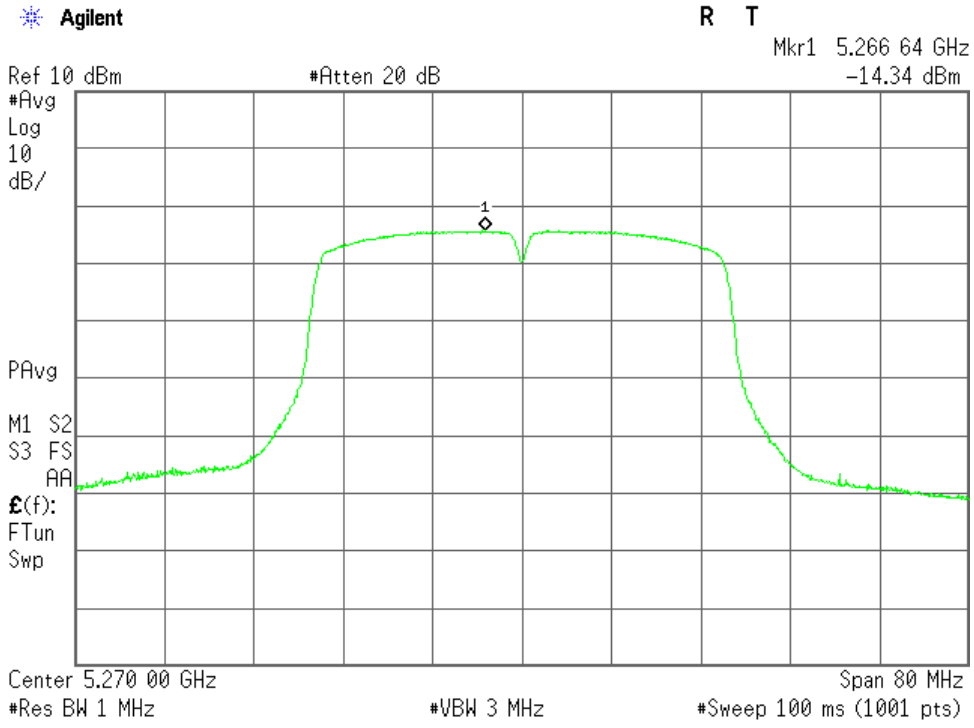
802.11n (40 MHz BW) 38ch (5190 MHz)



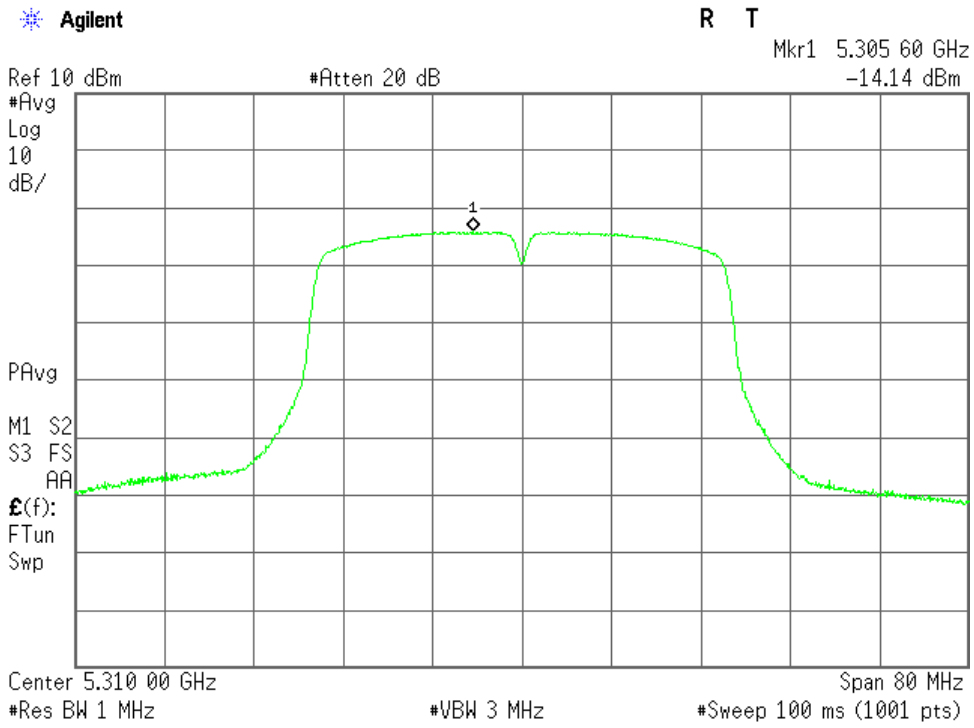
802.11n (40 MHz BW) 46ch (5230 MHz)



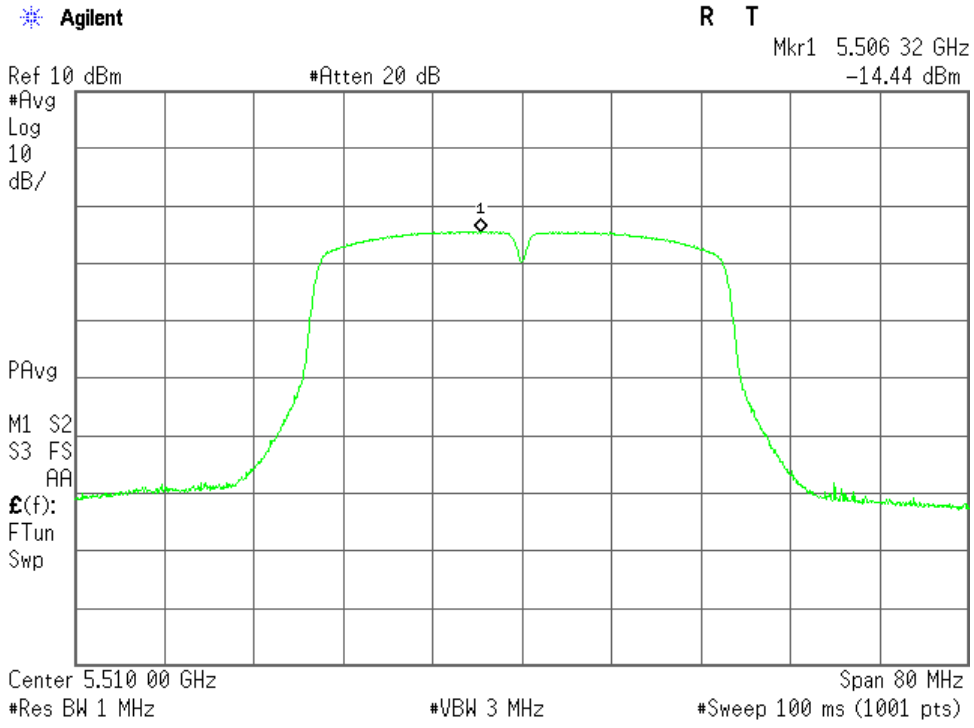

802.11n (40 MHz BW) 54ch (5270 MHz)



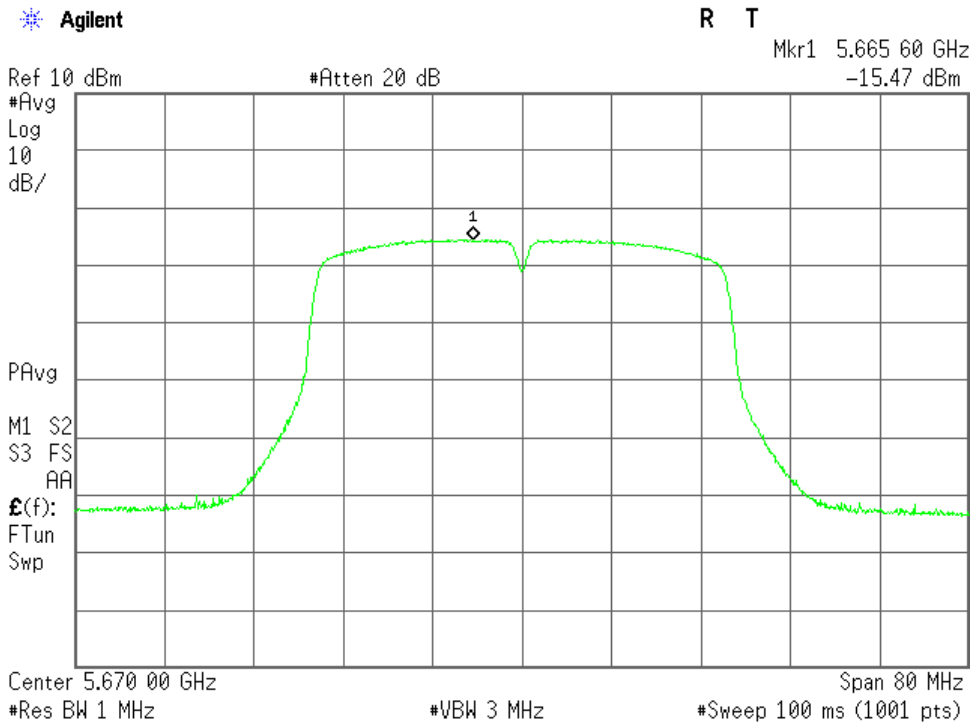
802.11n (40 MHz BW) 62ch (5310 MHz)




802.11n (40 MHz BW) 102ch (5510 MHz)



802.11n (40 MHz BW) 134ch (5670 MHz)



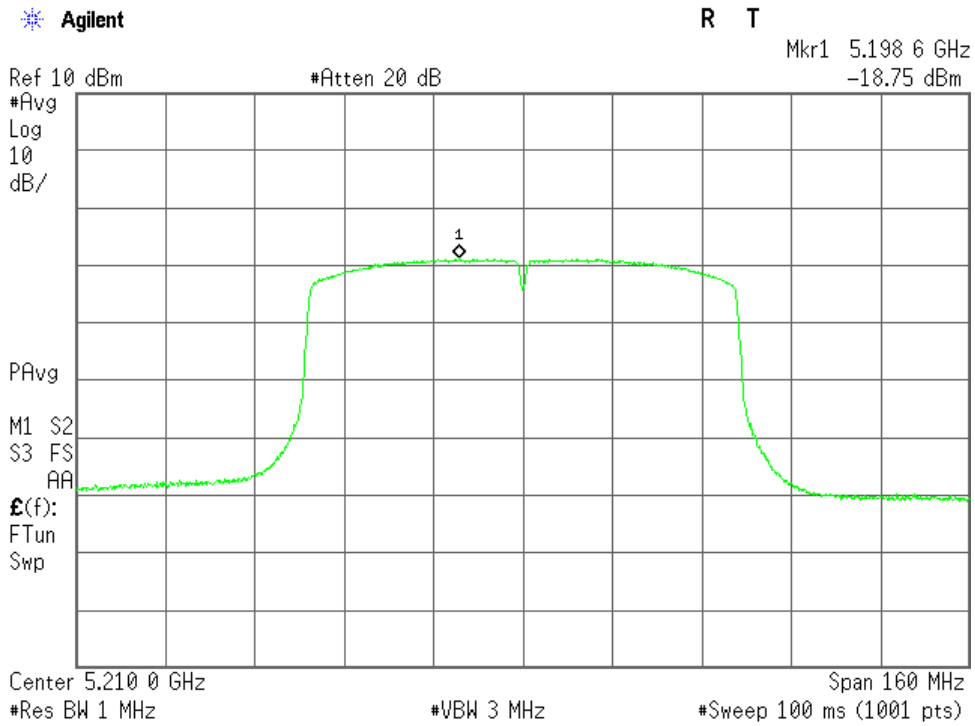
### 7.3.4.4 802.11ac (80 MHz BW) Peak power spectral density

Mode of EUT: Tx Mode (802.11ac: 80 MHz)
Test Port: Temporary antenna connector

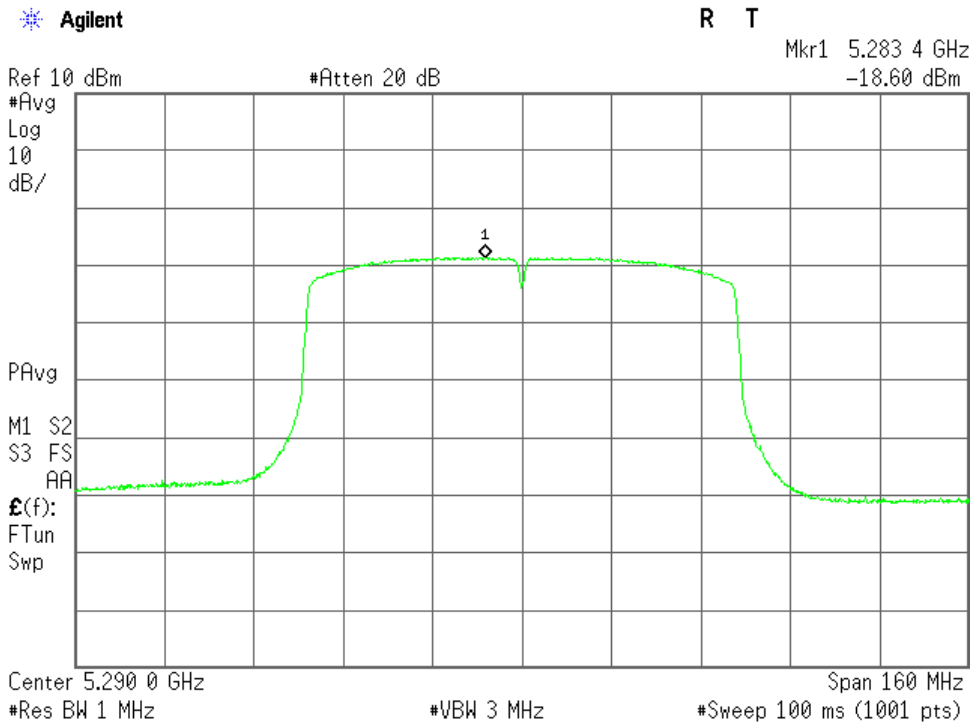
| Channel | Frequency (MHz) | Correction Factor(dB) | Meter Reading(dBm) | PPSD (dBm) | Limit (dBm) | Margin (dB) |
|---|---|---|---|---|---|---|
| 42 | 5210 | 10.19 | -18.75 | -8.56 | 11.00 | 19.56 |
| 58 | 5290 | 10.20 | -18.60 | -8.40 | 11.00 | 19.40 |
| 106 | 5530 | 10.22 | -18.93 | -8.71 | 11.00 | 19.71 |
| 122 | 5610 | 10.23 | -19.69 | -9.46 | 11.00 | 20.46 |

The test results (PPSD) is calculated as follows;
For 42 channel (5210 MHz)
PPSD = Correction Factor + Meter Reading = 10.19 + (-18.75) = -8.56 dBm
Correction Factor = cable loss + 10 dB attenuator

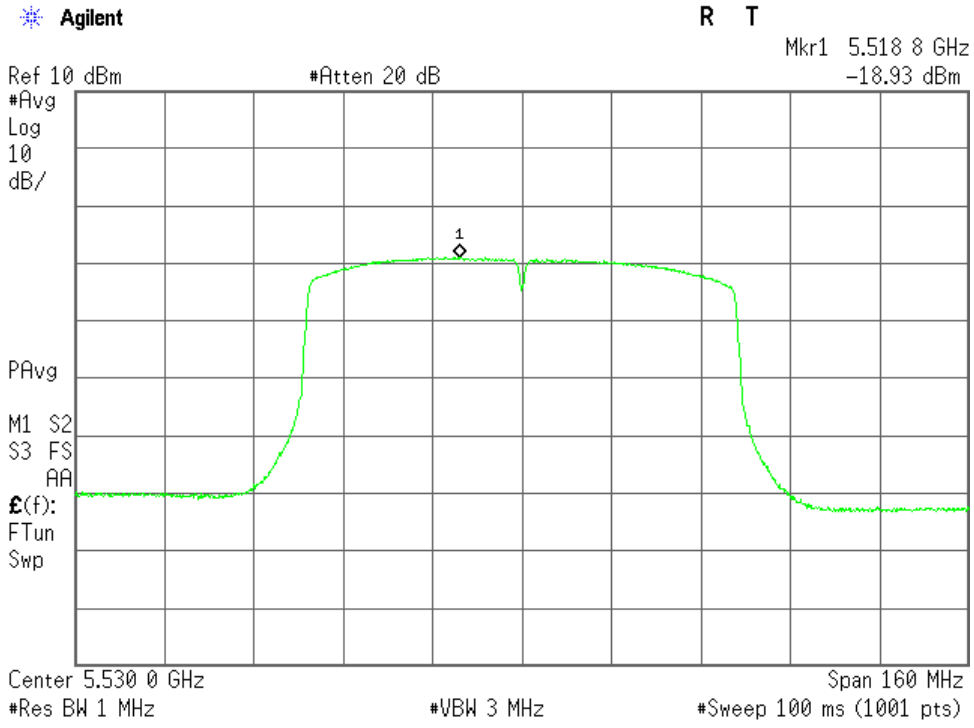
802.11ac (80 MHz BW) 42ch (5210 MHz)



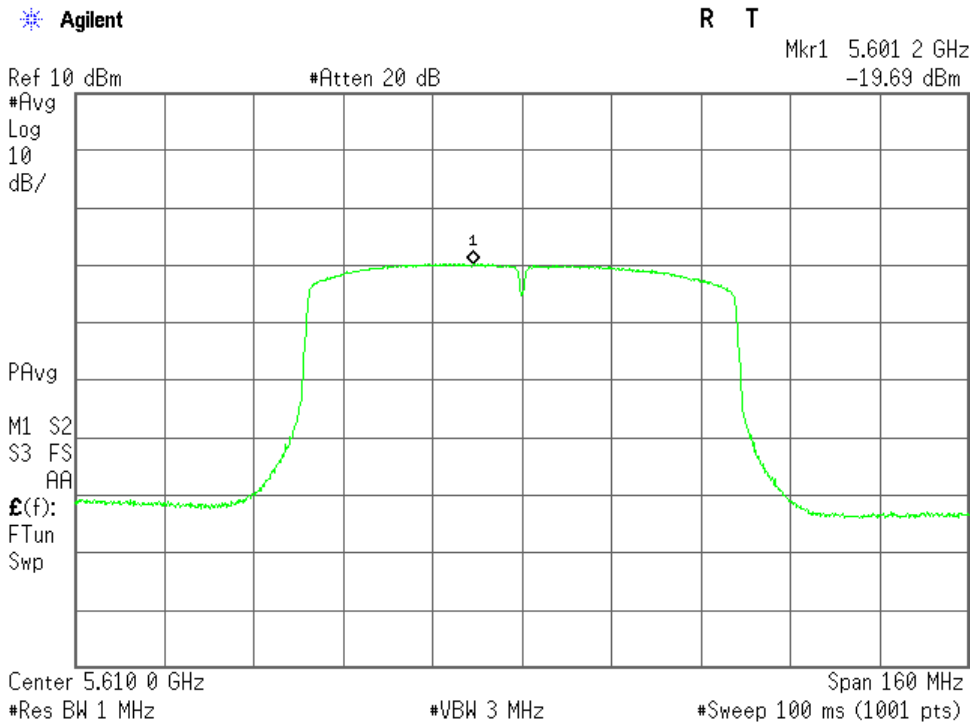
802.11ac (80 MHz BW) 58ch (5290 MHz)




802.11ac (80 MHz BW) 106ch (5530 MHz)



802.11ac (80 MHz BW) 122ch (5610 MHz)



### 7.4 Peak Excursion

For the requirements, ☐ - Applicable [ ☐ - Tested. ☐ - Not tested by applicant request. ]
☑ - Not Applicable

Remarks : _____

### 7.5 AC Powerline Conducted Emission

For the requirements, ☑ - Applicable [ ☑ - Tested. ☐ - Not tested by applicant request. ]
☐ - Not Applicable

#### 7.5.1 Test Results

For the standard, ☑ - **Passed** ☐ - **Failed** ☐ - **Not judged**

Min. Limit Margin (Quasi-Peak) 9.0 dB at 3.478 MHz

Uncertainty of Measurement Results ± 2.6 dB(2σ)

Remarks : _____

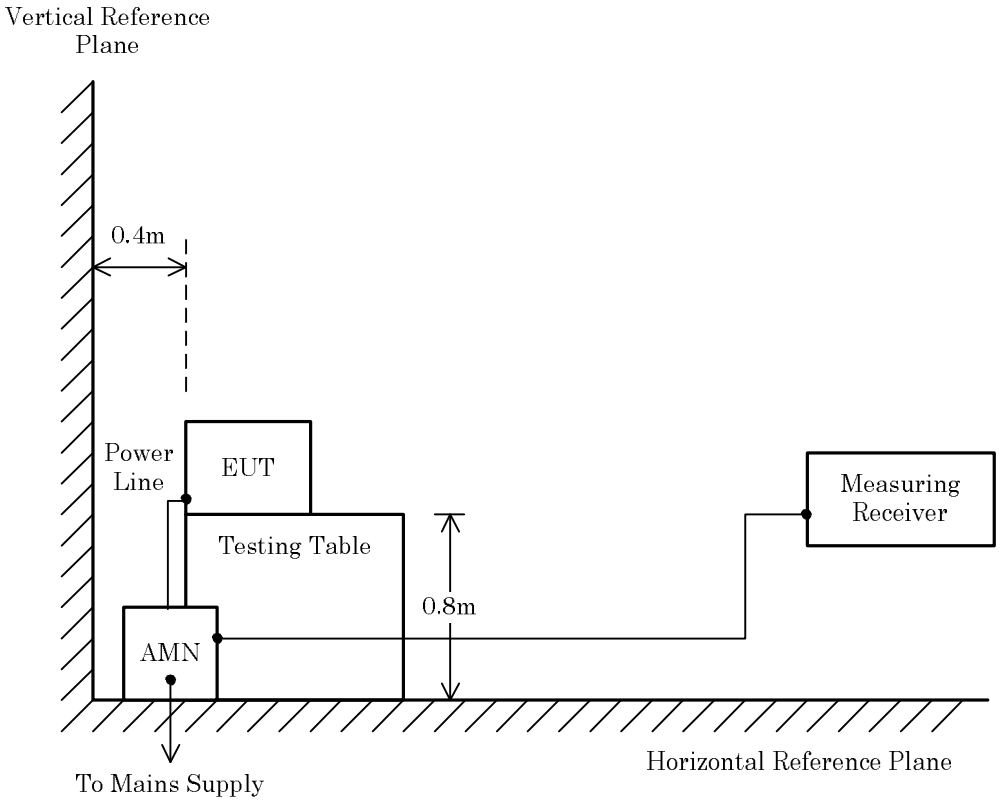
#### 7.5.2 Test Instruments

| Measurement Room M2 | | | | |
|---|---|---|---|---|
| **Type** | **Model** | **Serial No. (ID)** | **Manufacturer** | **Cal. Due** |
| Test Receiver | ESU 26 | 100170 (A-6) | Rohde & Schwarz | 2016/04/25 |
| AMN (main) | ESH3-Z5 | 893045/007 (D-12) | Rohde & Schwarz | 2016/08/27 |
| RF Cable | RG223/U | --- (H-35) | HUBER+SUHNER | 2016/06/04 |

NOTE : The calibration interval of the above test instruments is 12 months.

### 7.5.3 Test Method and Test Setup (Diagrammatic illustration)

The preliminary tests were performed using the scan mode of test receiver or spectrum analyzer to observe the emissions characteristics of the EUT.
The EUT configuration, cable configuration and mode of operation were determined for producing the maximum level of emissions.
This configurations was used for final tests.
(Reference divisional instruction No. G703649)




NOTE
AMN : Artificial Mains Network

### 7.5.4 Test Data

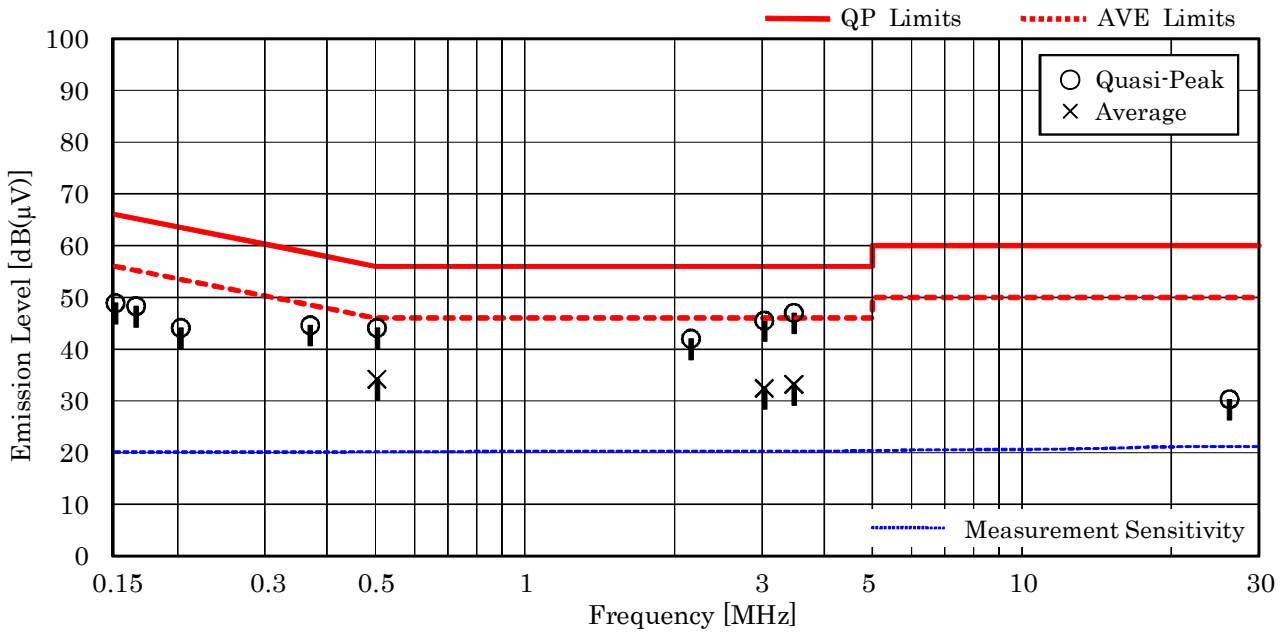
Mode of EUT : All modes have been investigated and the worst case mode for channel (36ch: 5180MHz / IEEE 802.11a) has been listed.

**Test voltage : 120VAC 60Hz**

Test Date: September 24, 2015
Temp.: 24 °C, Humi.: 66 %

**Measured phase : L1**

| Frequency [MHz] | Corr. Factor [dB] | Meter Readings [dB(μV)] QP | AVE | Limits [dB(μV)] QP | AVE | Results [dB(μV)] QP | AVE | Margin [dB] QP | AVE | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.150 | 10.1 | 38.8 | -- | 66.0 | 56.0 | 48.9 | -- | +17.1 | -- | - |
| 0.165 | 10.1 | 38.2 | -- | 65.2 | 55.2 | 48.3 | -- | +16.9 | -- | - |
| 0.203 | 10.2 | 33.9 | -- | 63.5 | 53.5 | 44.1 | -- | +19.4 | -- | - |
| 0.370 | 10.2 | 34.4 | -- | 58.5 | 48.5 | 44.6 | -- | +13.9 | -- | - |
| 0.504 | 10.2 | 33.9 | 24.0 | 56.0 | 46.0 | 44.1 | 34.2 | +11.9 | +11.8 | - |
| 2.158 | 10.3 | 31.7 | -- | 56.0 | 46.0 | 42.0 | -- | +14.0 | -- | - |
| 3.033 | 10.3 | 35.2 | 22.1 | 56.0 | 46.0 | 45.5 | 32.4 | +10.5 | +13.6 | - |
| 3.478 | 10.3 | 36.7 | 22.9 | 56.0 | 46.0 | 47.0 | 33.2 | + 9.0 | +12.8 | - |
| 26.183 | 11.3 | 19.0 | -- | 60.0 | 50.0 | 30.3 | -- | +29.7 | -- | - |



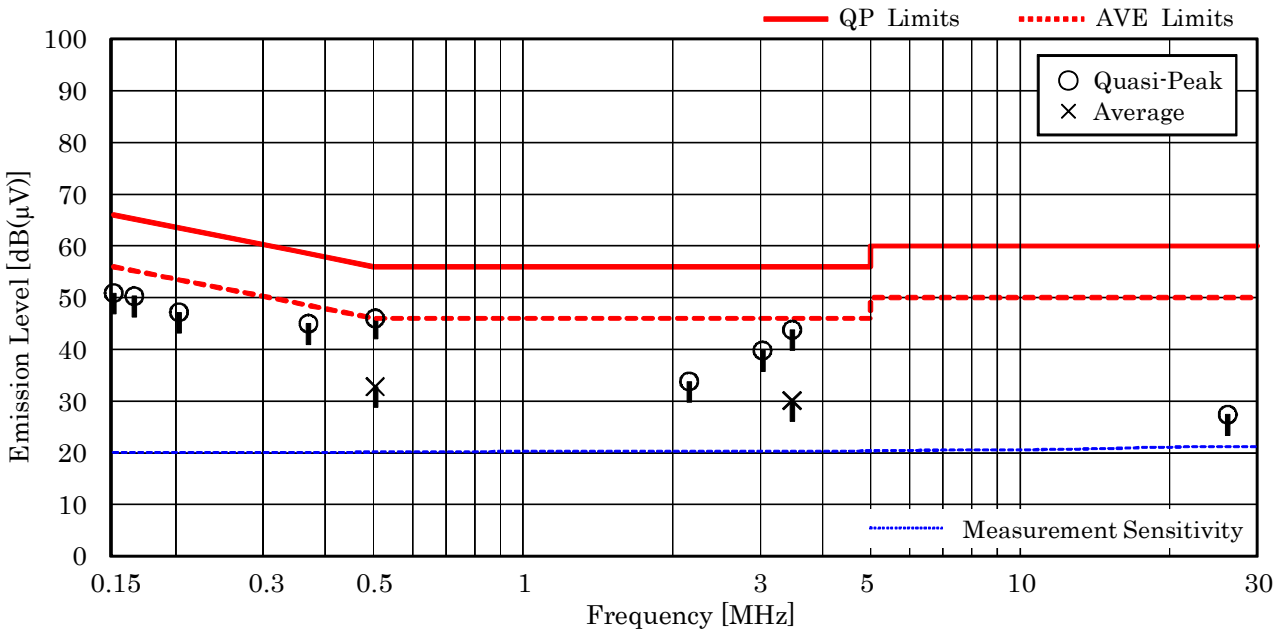

NOTES
1. The spectrum was checked from 0.15 MHz to 30 MHz.
2. The correction factor includes the AMN insertion loss and the cable loss.
3. The symbol of "<" means "or less".
4. The symbol of ">" means "more than".
5. The symbol of "--" means "not applicable".
6. Calculated result at 3.478 MHz, as the worst point shown on underline:
   Correction Factor + Meter Reading (QP) = 10.3 + 36.7 = 47.0 dB(μV)
7. QP : Quasi-Peak Detector / AVE : Average Detector
8. Test receiver setting(s) : CISPR QP 9 kHz / Average 9 kHz

**Test voltage : 120VAC 60Hz**

Test Date: September 24, 2015
Temp.: 24 °C, Humi.: 66 %

**Measured phase : L1**

| Frequency [MHz] | Corr. Factor [dB] | Meter Readings [dB(μV)] QP | AVE | Limits [dB(μV)] QP | AVE | Results [dB(μV)] QP | AVE | Margin [dB] QP | AVE | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|
| 0.150 | 10.1 | 40.8 | -- | 66.0 | 56.0 | 50.9 | -- | +15.1 | -- | - |
| 0.165 | 10.1 | 40.2 | -- | 65.2 | 55.2 | 50.3 | -- | +14.9 | -- | - |
| 0.203 | 10.2 | 37.0 | -- | 63.5 | 53.5 | 47.2 | -- | +16.3 | -- | - |
| 0.370 | 10.2 | 34.8 | -- | 58.5 | 48.5 | 45.0 | -- | +13.5 | -- | - |
| 0.504 | 10.2 | 35.8 | 22.6 | 56.0 | 46.0 | 46.0 | 32.8 | +10.0 | +13.2 | - |
| 2.158 | 10.3 | 23.5 | -- | 56.0 | 46.0 | 33.8 | -- | +22.2 | -- | - |
| 3.033 | 10.3 | 29.5 | -- | 56.0 | 46.0 | 39.8 | -- | +16.2 | -- | - |
| 3.478 | 10.3 | 33.5 | 19.8 | 56.0 | 46.0 | 43.8 | 30.1 | +12.2 | +15.9 | - |
| 26.183 | 11.3 | 16.1 | -- | 60.0 | 50.0 | 27.4 | -- | +32.6 | -- | - |




NOTES
1. The spectrum was checked from 0.15 MHz to 30 MHz.
2. The correction factor includes the AMN insertion loss and the cable loss.
3. The symbol of "<" means "or less".
4. The symbol of ">" means "more than".
5. The symbol of "--" means "not applicable".
6. Calculated result at 0.504 MHz, as the worst point shown on underline:
   Correction Factor + Meter Reading (QP) = 10.2 + 35.8 = 46.0 dB(μV)
7. QP : Quasi-Peak Detector / AVE : Average Detector
8. Test receiver setting(s) : CISPR QP 9 kHz / Average 9 kHz

## 7.6 Unwanted Radiated Emission

For the requirements, ☑ - Applicable [ ☑ - Tested. ☐ - Not tested by applicant request. ]
☐ - Not Applicable

### 7.6.1 Test Results

For the standard, ☑ - **Passed** ☐ - **Failed** ☐ - **Not judged**

Min. Limit Margin (Average) 3.9 dB at 7093.3/ 7079.9 MHz

| | | | |
|---|---|---|---|
| Uncertainty of Measurement Results | 9 kHz – 30 MHz | ± 3.0 | dB(2σ) |
| | 30 MHz – 300 MHz | ± 3.8 | dB(2σ) |
| | 300 MHz – 1000 MHz | ± 4.8 | dB(2σ) |
| | 1 GHz – 6 GHz | ± 4.7 | dB(2σ) |
| | 6 GHz – 18 GHz | ± 4.6 | dB(2σ) |
| | 18 GHz – 40 GHz | ± 5.5 | dB(2σ) |
| Test Distance | 9 kHz – 26.5 GHz | 3 | m |
| | 26.5 GHz – 40 GHz | 1 | m |

Remarks : Worst case is 802.11a/ 802.11n(20MHz BW) channel 64 (Z axis position) at 7093.28MHz and 802.11n(40MHz BW) channel 62(Z axis position) at 7079.94MHz.
The measurement result is within the range of measurement uncertainty.

### 7.6.2 Test Instruments

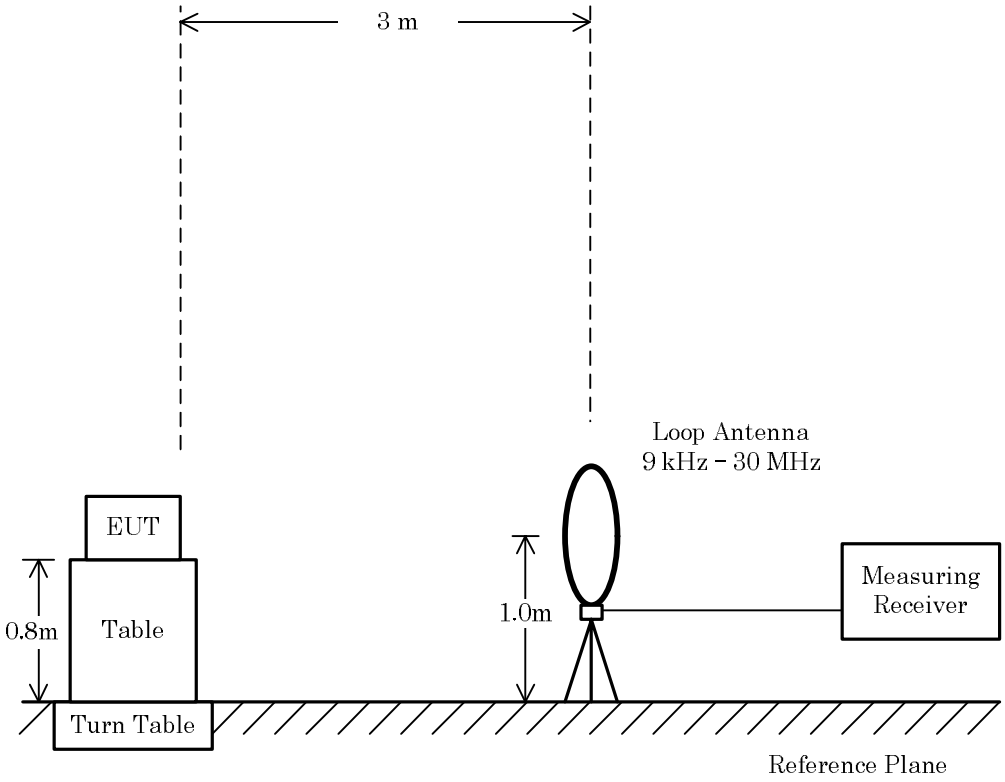
| Anechoic Chamber A2 | | | | |
|---|---|---|---|---|
| **Type** | **Model** | **Serial No. (ID)** | **Manufacturer** | **Cal. Due** |
| Test Receiver | ESU 26 | 100170 (A-6) | Rohde & Schwarz | 2016/04/25 |
| Spectrum Analyzer | E4446A | US44300388 (A-39) | Agilent | 2016/08/11 |
| Loop Antenna | HFH2-Z2 | 872096/25 (C-2) | Rohde & Schwarz | 2016/07/26 |
| RF Cable | RG213/U | --- (H-28) | HUBER+SUHNER | 2016/07/26 |
| Pre-Amplifier | 310N | 304573 (A-17) | SONOMA | 2016/04/15 |
| Biconical Antenna | VHA9103/BBA9106 | 2355 (C-30) | Schwarzbeck | 2016/05/24 |
| Log-periodic Antenna | UHALP9108-A1 | 0694 (C-31) | Schwarzbeck | 2016/05/24 |
| RF Cable | S 10162 B-11 etc. | --- (H-4) | HUBER+SUHNER | 2016/04/15 |
| Site Attenuation | -- | --- (H-15) | ---- | 2016/01/05 |
| Pre-Amplifier | TPA0118-36 | 1010 (A-37) | TOYO | 2016/05/11 |
| Horn Antenna | 91888-2 | 562 (C-41-1) | EATON | 2016/06/16 |
| Horn Antenna | 91889-2 | 568 (C-41-2) | EATON | 2016/06/16 |
| Horn Antenna | 3160-04 | 9903-1053 (C-55) | EMCO | 2016/06/29 |
| Horn Antenna | 3160-05 | 9902-1061 (C-56) | EMCO | 2016/06/29 |
| Horn Antenna | 3160-06 | 9712-1045 (C-57) | EMCO | 2016/06/29 |
| Horn Antenna | 3160-07 | 9902-1113 (C-58) | EMCO | 2016/06/29 |
| Horn Antenna | 3160-08 | 9904-1099 (C-59) | EMCO | 2016/06/29 |
| Horn Antenna | 3160-09 | 9808-1117 (C-48) | EMCO | 2016/06/28 |
| Horn Antenna | 3160-10 | 9808-1072 (C-49) | EMCO | 2016/06/28 |
| Attenuator | 54A-10 | W5713 (D-29) | Weinschel | 2016/08/16 |
| Attenuator | 2-10 | BA6214 (D-79) | Weinschel | 2015/11/18 |
| RF Cable | SUCOFLEX104 | 267479/4 (C-66) | HUBER+SUHNER | 2016/01/19 |
| RF Cable | SUCOFLEX104 | 267414/4 (C-67) | HUBER+SUHNER | 2016/01/19 |
| RF Cable | SUCOFLEX102EA | 3041/2EA (C-69) | HUBER+SUHNER | 2016/01/19 |
| Band Rejection Filter | BRM50716 | 063 (D-53) | Micro Tronics | 2016/06/28 |
| SVSWR | -- | --- (H-19) | ---- | 2016/02/27 |

NOTE : The calibration interval of the above test instruments is 12 months.

### 7.6.3 Test Method and Test Setup (Diagrammatic illustration)

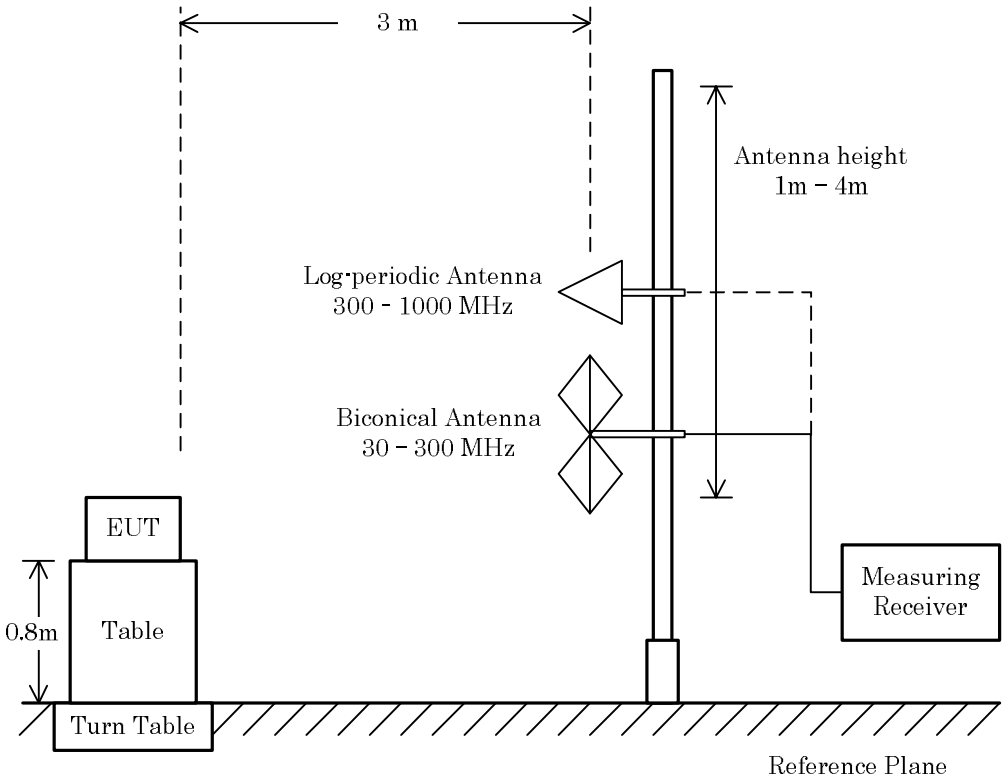
#### 7.6.3.1 Radiated Emission 9 kHz – 30 MHz

The preliminary tests were performed at the measurement distance that specified for compliance to determine the emission characteristics of the EUT.
The EUT configuration, cable configuration and mode of operation were determined for producing the maximum level of emissions.
This configurations was used for the final tests.
(Reference divisional instruction No. G70364B)



### 7.6.3.2 Radiated Emission 30 MHz – 1000 MHz

The preliminary tests were performed at the measurement distance that specified for compliance to determine the emission characteristics of the EUT.
The EUT configuration, cable configuration and mode of operation were determined for producing the maximum level of emissions.
This configurations was used for the final tests.
(Reference divisional instruction No. G70364B)



### 7.6.3.3 Radiated Emission above 1 GHz

The preliminary tests were performed at the measurement distance that specified for compliance to determine the emission characteristics of the EUT.
The EUT configuration(in X, Y and Z axis), cable configuration and mode of operation were determined for producing the maximum level of emissions.
This configurations was used for the final tests.
The average unwanted emissions measurements were performed in accordance with KDB 789033 D02 Method VB described in G.6.d) in this document.
(Reference divisional instruction No. G70364C)

The setting of the measuring instruments are shown as follows:

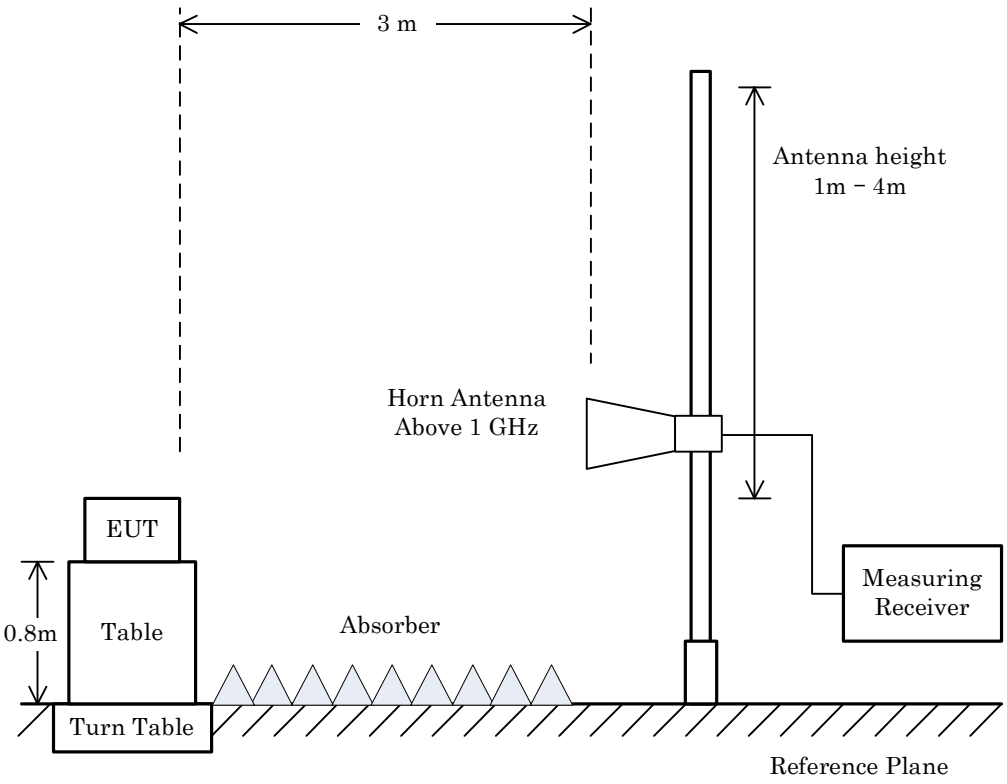
| Type | Peak | Average |
|---|---|---|
| Detector Function | Peak | Peak |
| Res. Bandwidth | 1 MHz | 1 MHz |
| Video Bandwidth | 3 MHz | ≥ 1/T *1) |
| Video Filtering | Linear Voltage | Linear Voltage |
| Sweep Time | AUTO | AUTO |
| Trace | Max Hold | Max Hold |

Note: 1. T: Minimum transmission duration

Average (VBW) Setting:

| Mode | Interval | Cycle | Duty cycle | Burst on period(T) | Min. VBW(1/T) | VBW Setting |
|---|---|---|---|---|---|---|
| | (msec) | (msec) | (%) | (msec) | (kHz) | (kHz)) |
| IEEE802.11a | 0.107 | 2.134 | 95.0% | 2.03 | 0.49 | 0.50 |
| IEEE802.11n(HT20) | 0.107 | 1.994 | 94.6% | 1.89 | 0.53 | 1.00 |
| IEEE802.11n(HT40) | 0.107 | 1.034 | 89.7% | 0.93 | 1.08 | 2.00 |
| IEEE802.11ac(VHT80) | 0.097 | 0.553 | 82.4% | 0.46 | 2.19 | 3.00 |

– Side View –



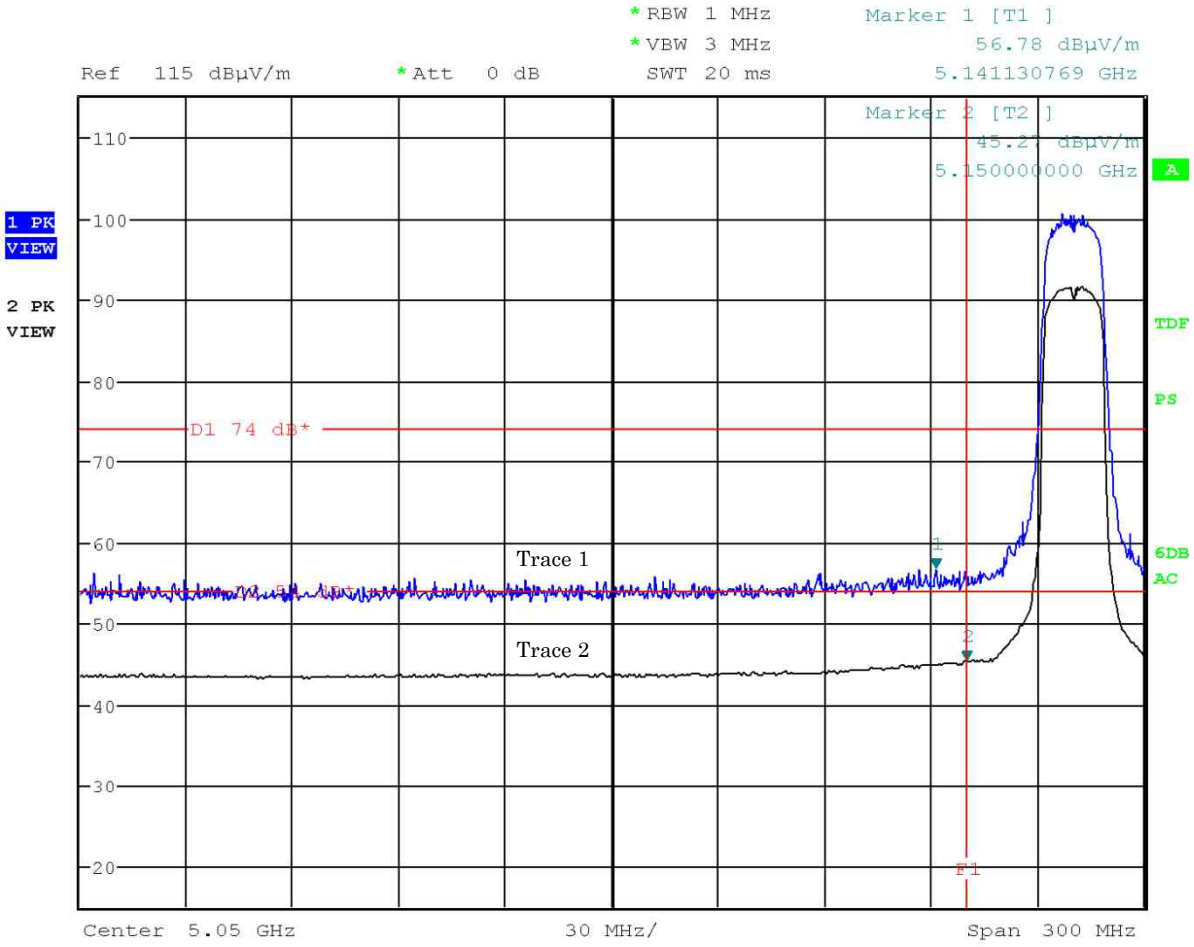

NOTE
The antenna height is scanned depending on the EUT's size and mounting height.

### 7.6.4 Test Data

#### 7.6.4.1 Radiated Band Edge

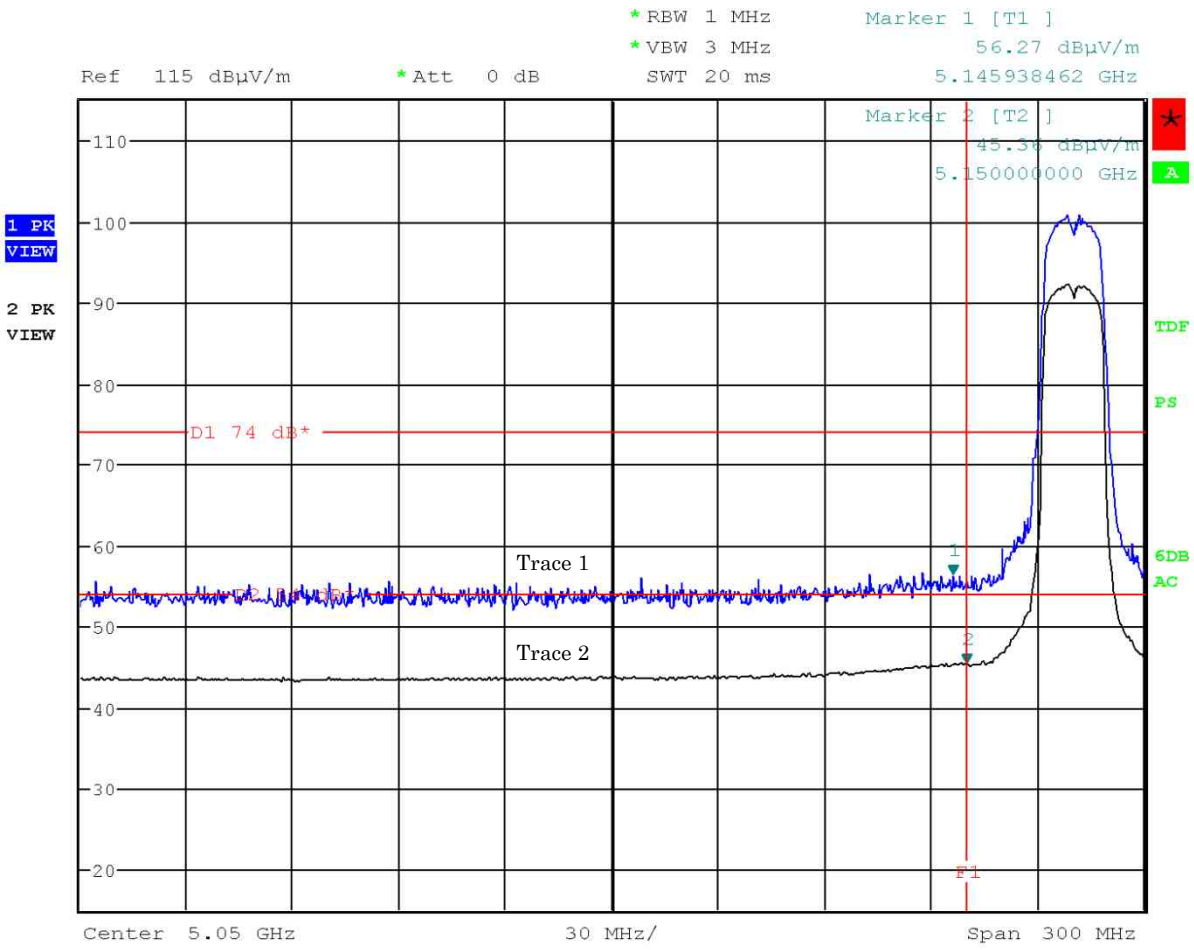
Test Date : September 28, 2015
Temp.:23°C, Humi:64%

Mode of EUT : TX mode ( 802.11a, 36ch: 5180 MHz)
Antenna Polarization : Horizontal



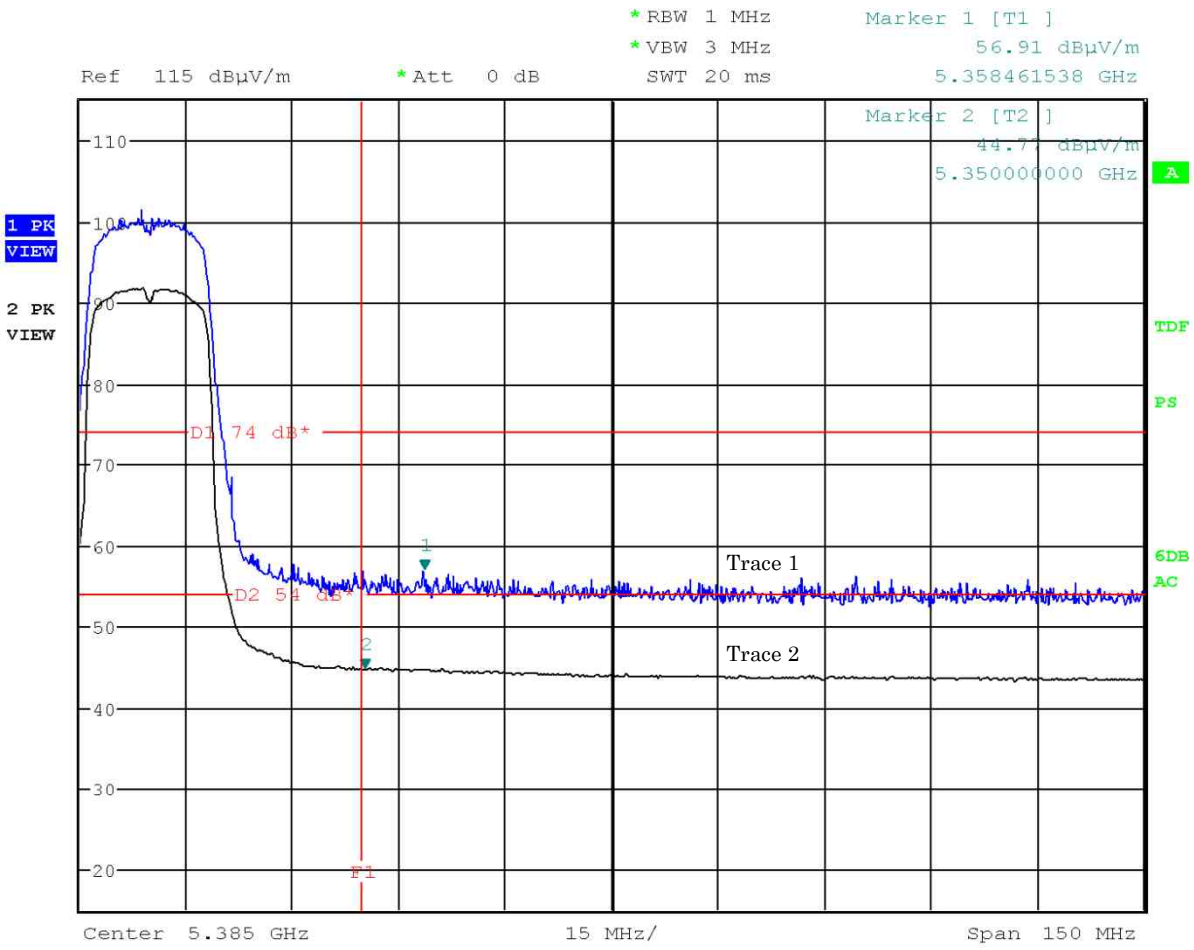

Note: The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : TX mode ( 802.11a, 36ch: 5180 MHz)
Antenna Polarization : Vertical



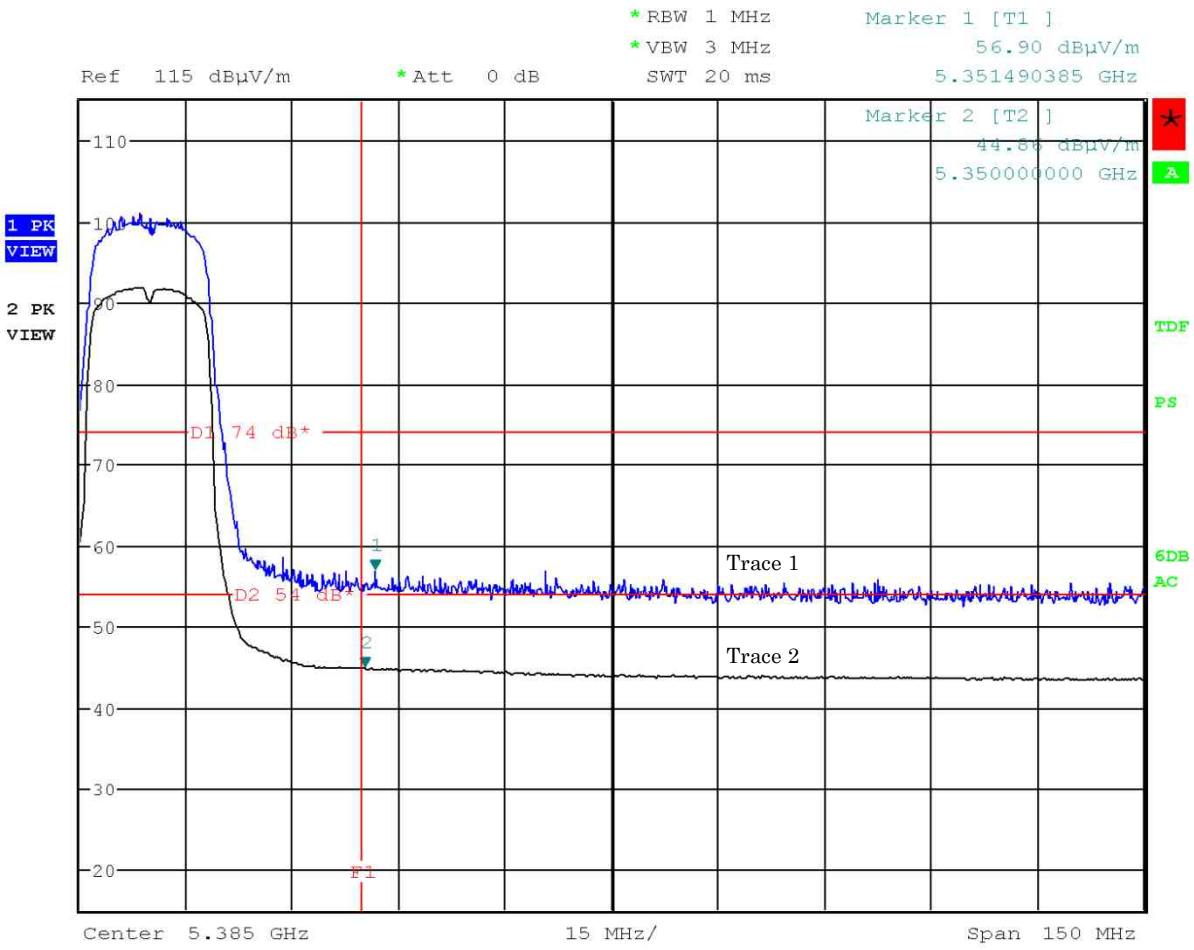

Note: The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : TX mode ( 802.11a, 64ch: 5320 MHz)
Antenna Polarization : Horizontal



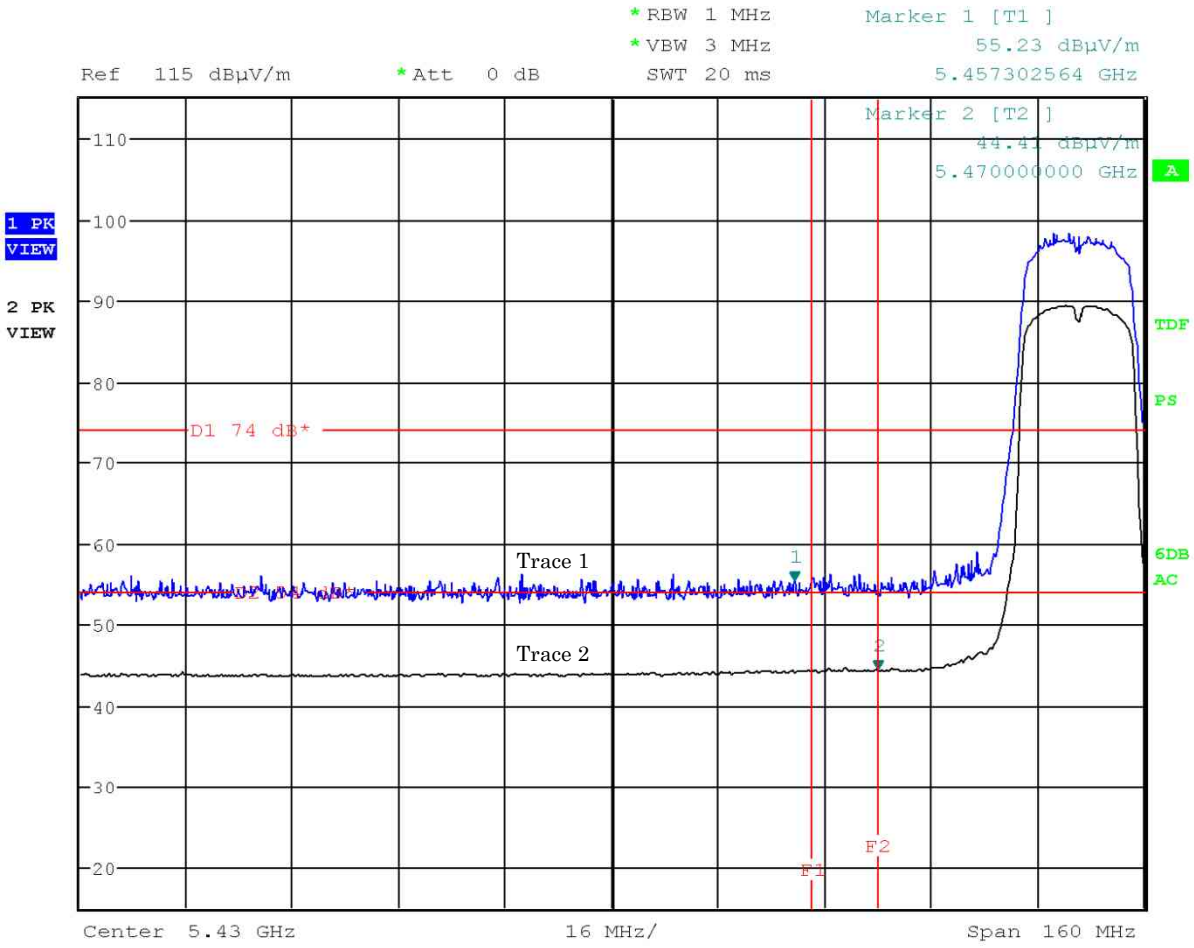

Note: The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : TX mode ( 802.11a, 64ch: 5320 MHz)
Antenna Polarization : Vertical



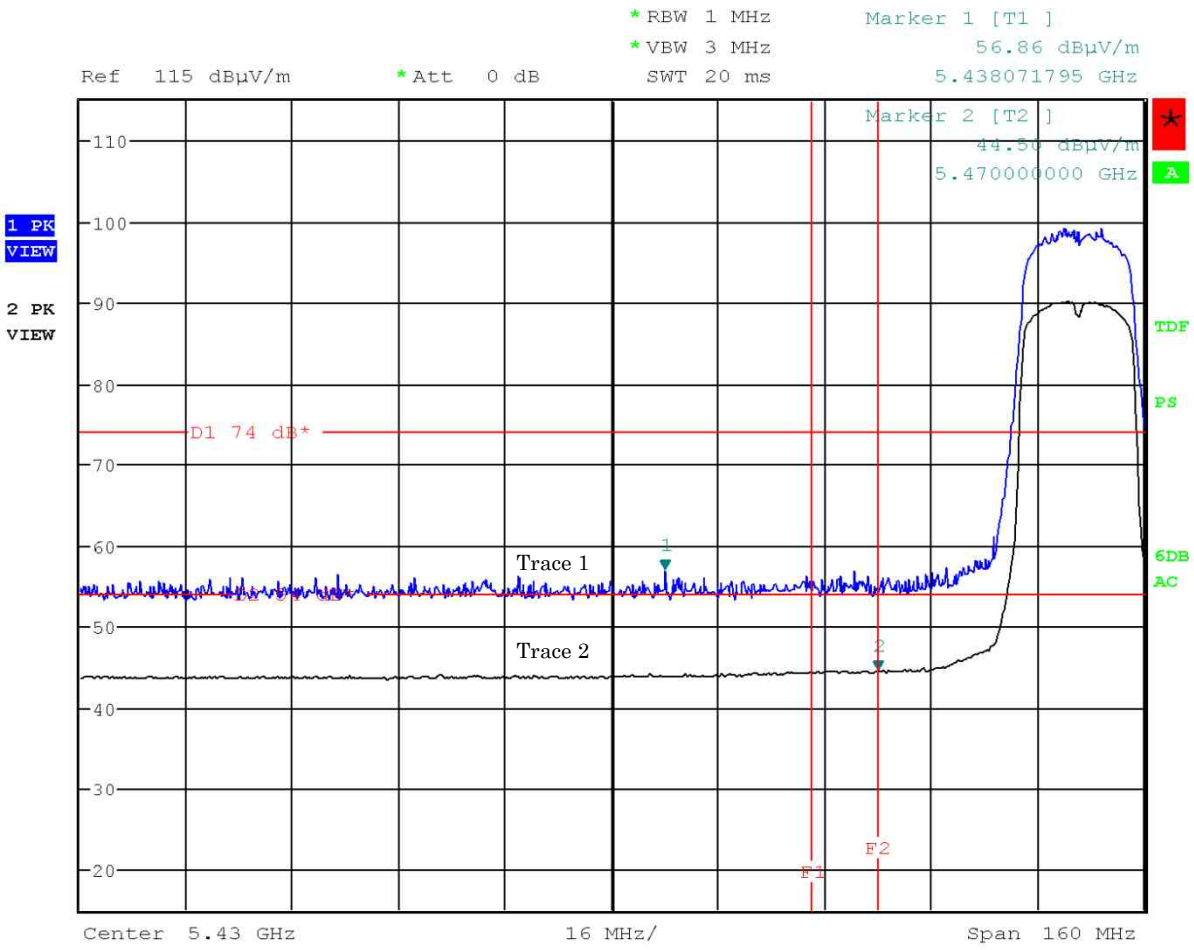

Note: The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : TX mode ( 802.11a, 100ch: 5500 MHz)
Antenna Polarization : Horizontal



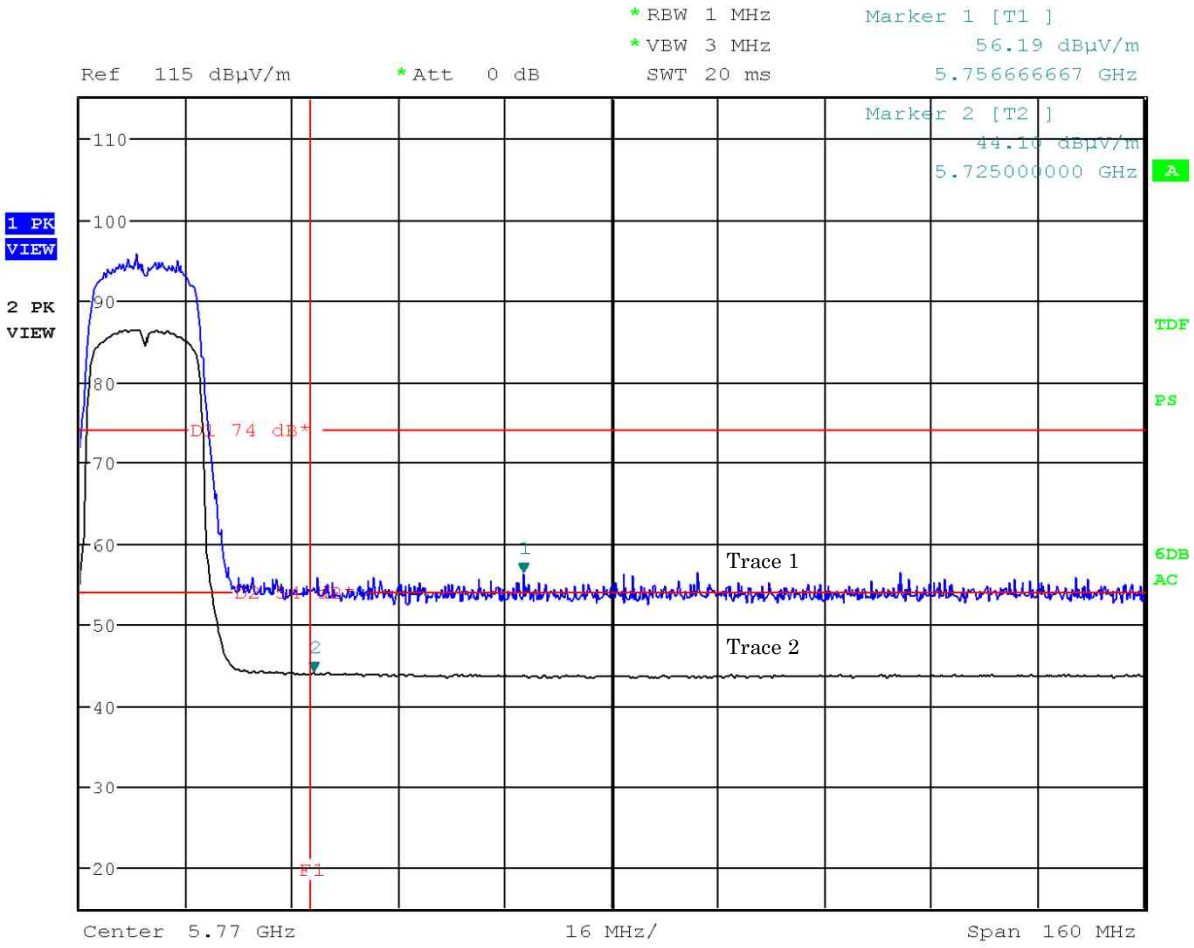

Note: The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : TX mode ( 802.11a, 100ch: 5500 MHz)
Antenna Polarization : Vertical



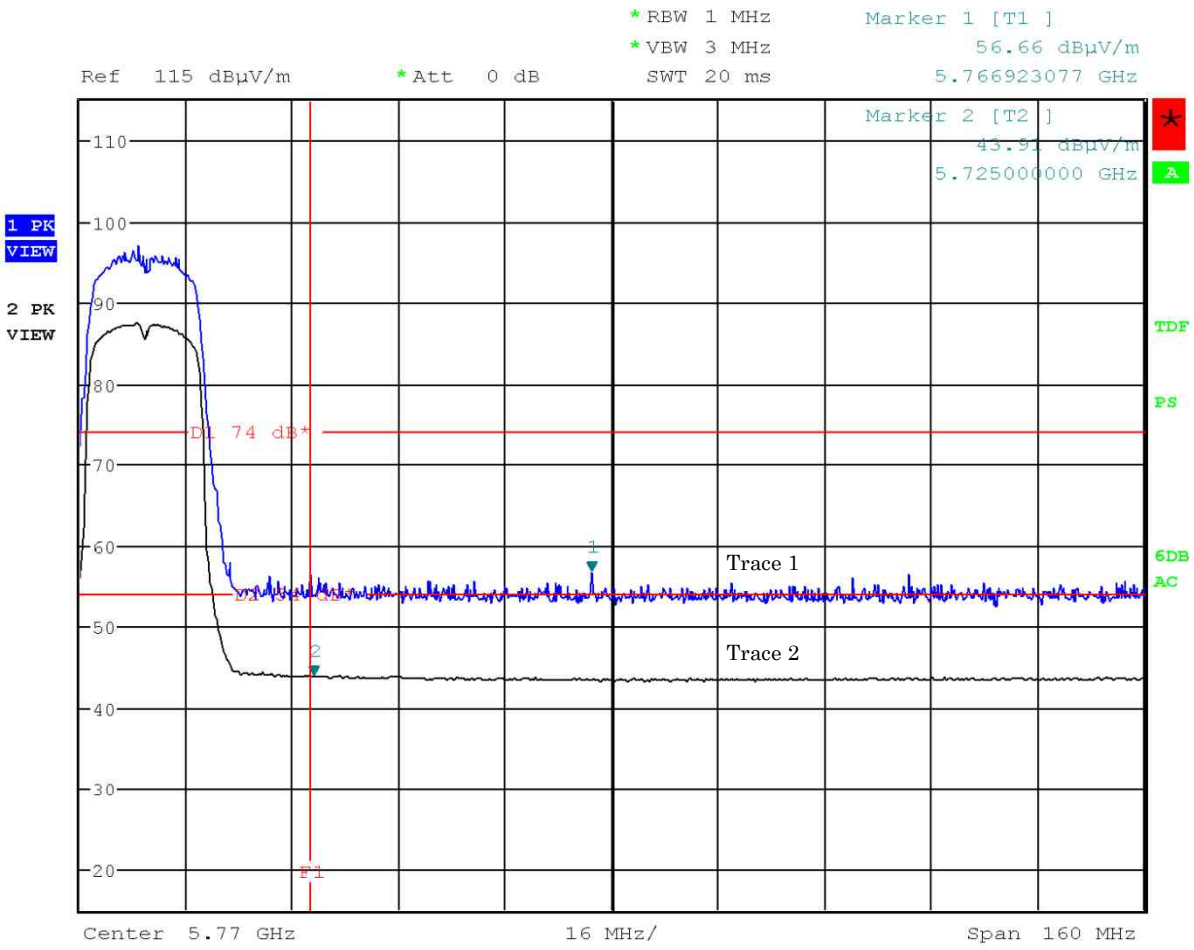

Note: The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : TX mode ( 802.11a, 140ch: 5700 MHz)
Antenna Polarization : Horizontal



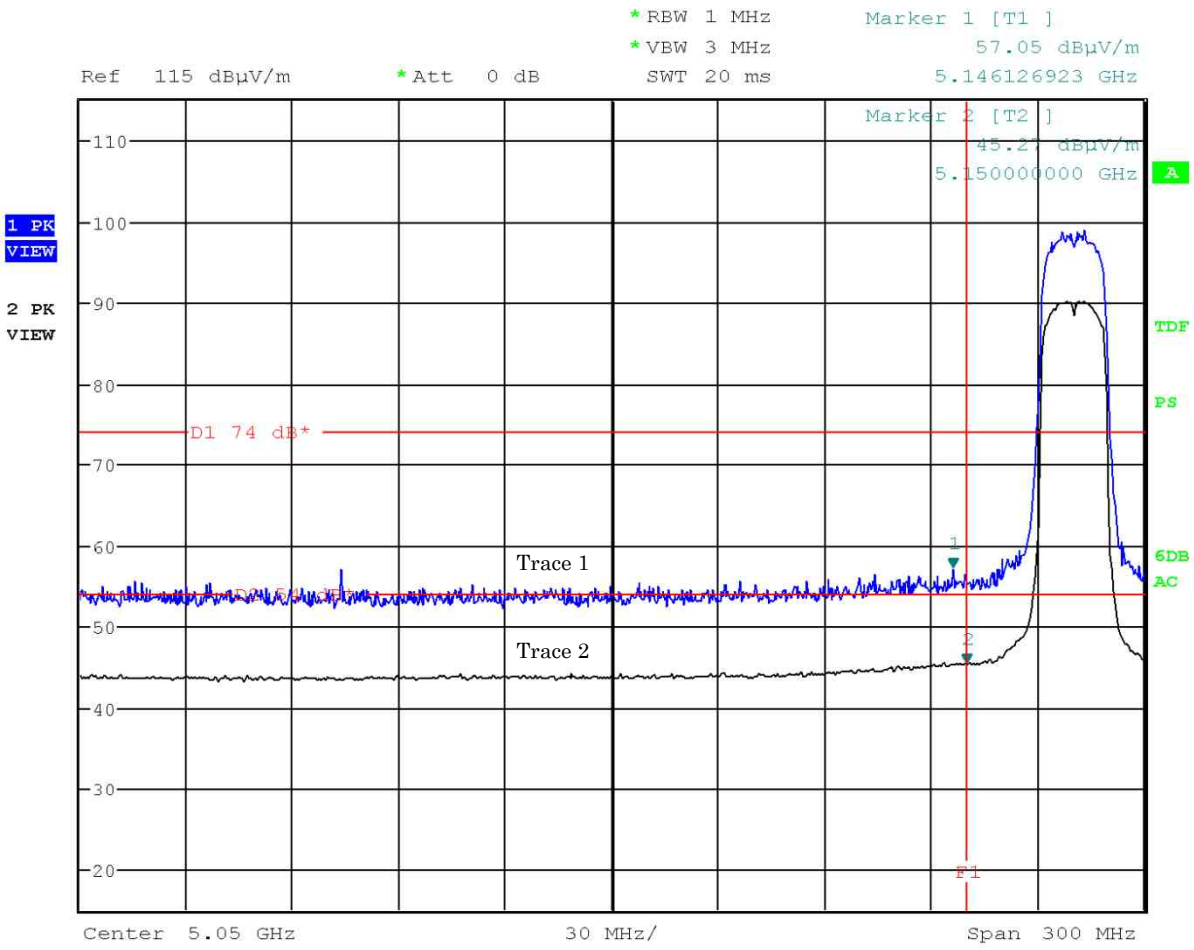

Note: The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : TX mode ( 802.11a, 140ch: 5700 MHz)
Antenna Polarization : Vertical



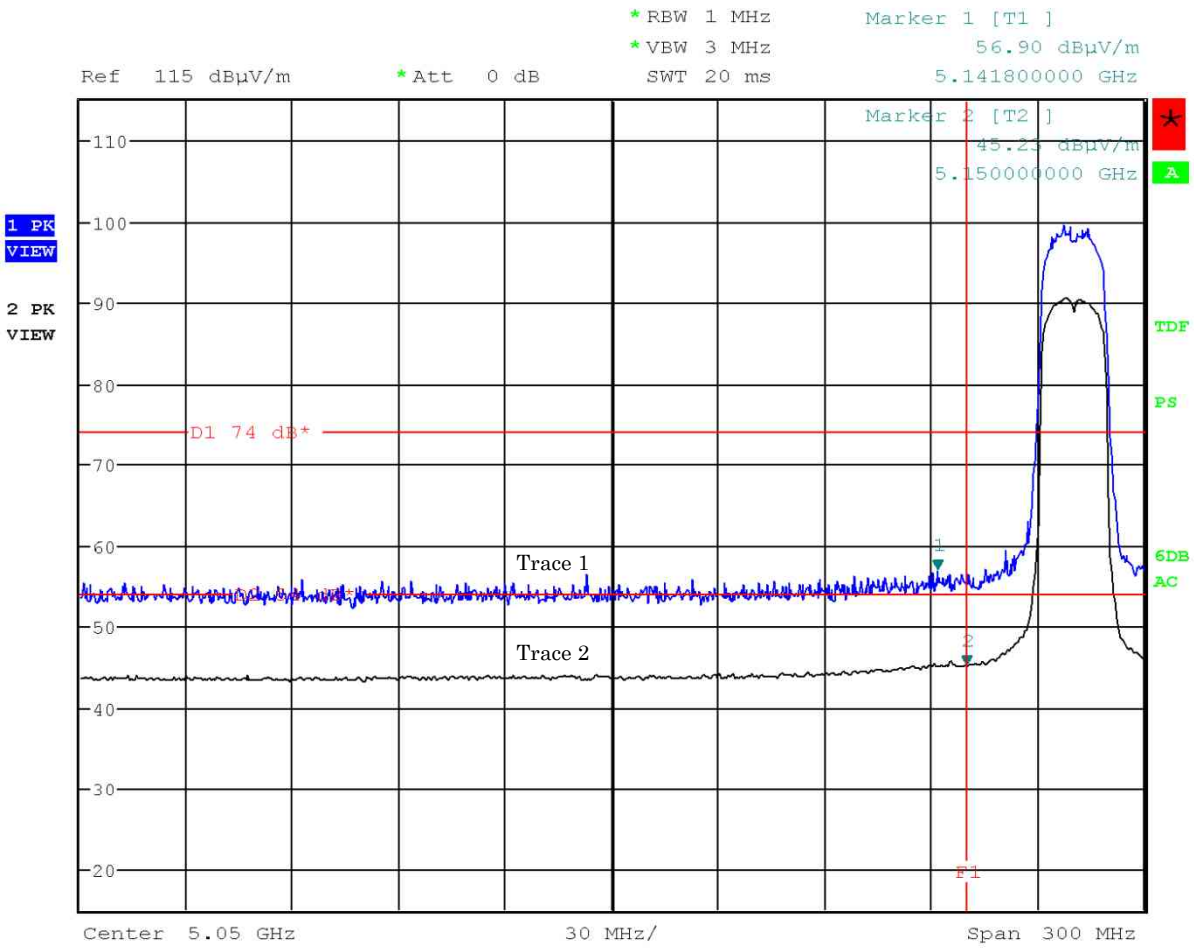

Note: The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : TX mode ( 802.11n: 20 MHz BW, 36ch: 5180 MHz)
Antenna Polarization : Horizontal



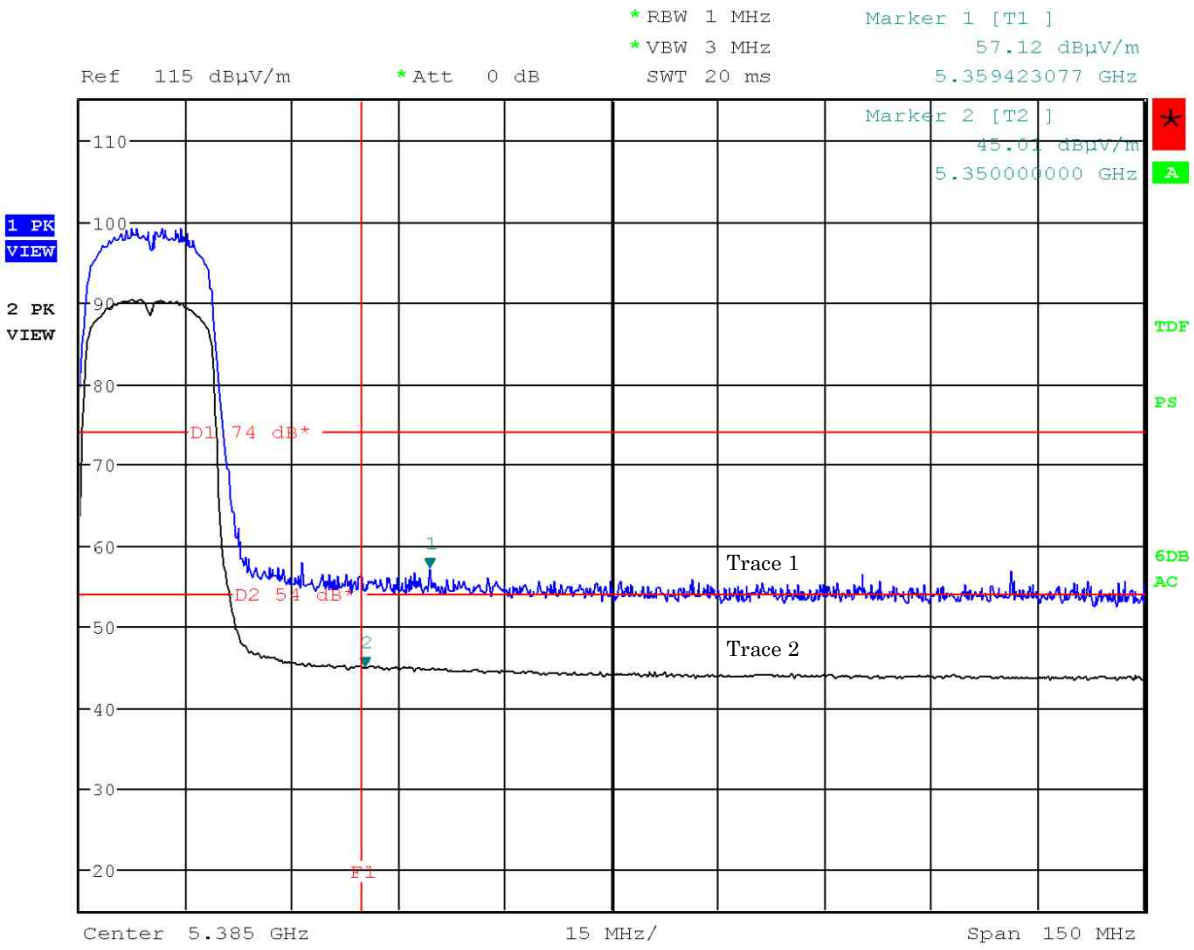

Note: The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : TX mode (802.11n: 20 MHz BW, 36ch: 5180 MHz)
Antenna Polarization : Vertical



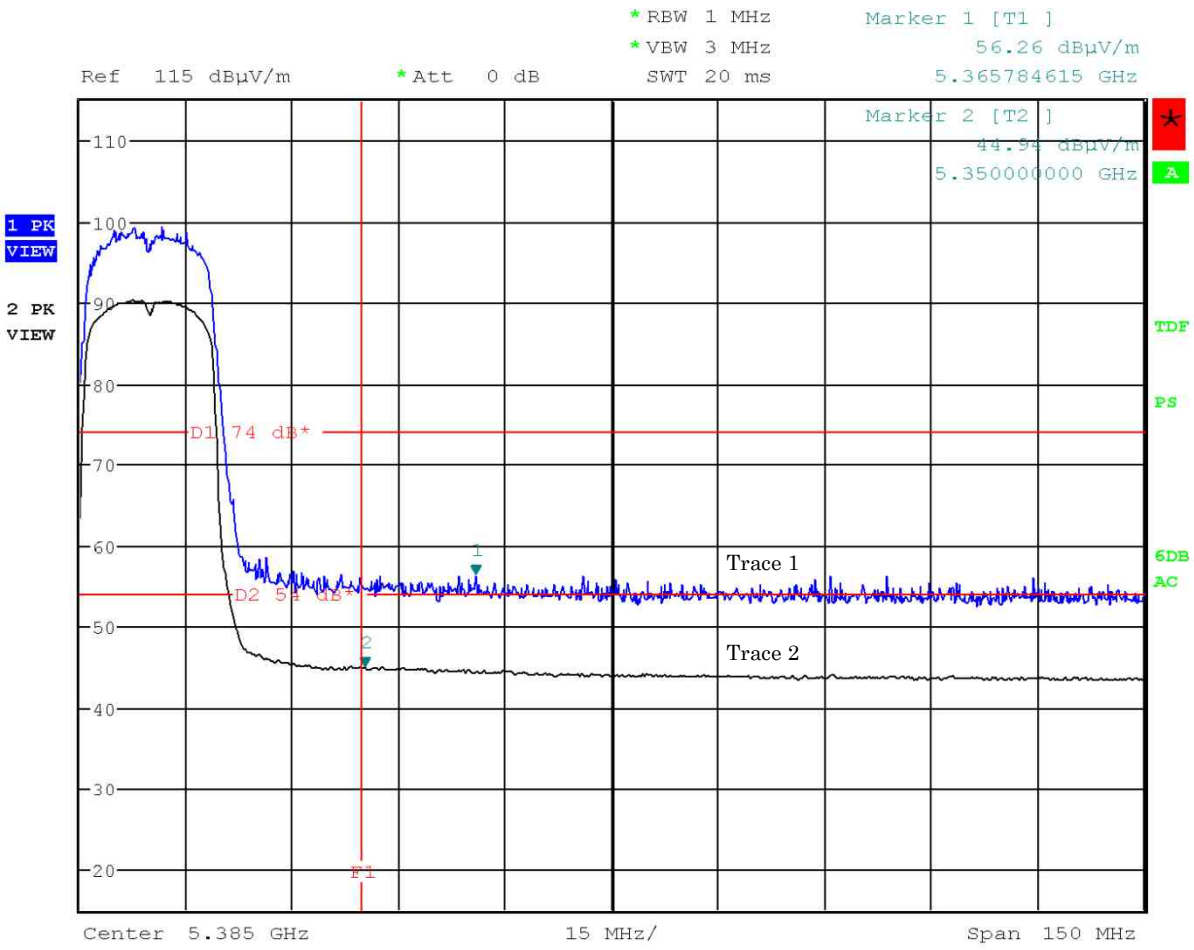

Note: The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : TX mode (802.11n: 20 MHz BW, 64ch: 5320 MHz)
Antenna Polarization : Horizontal



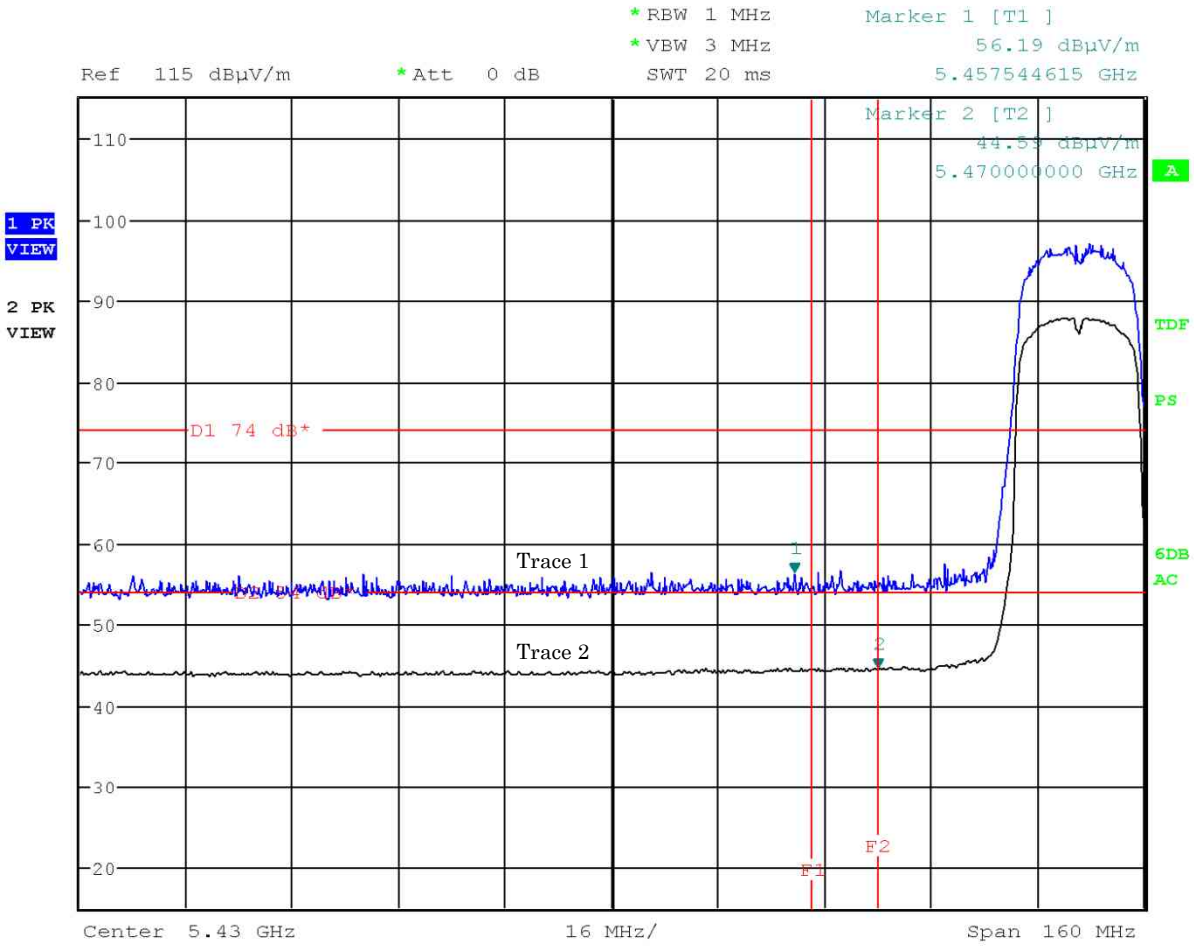

Note: The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : TX mode (802.11n: 20 MHz BW, 64ch: 5320 MHz)
Antenna Polarization : Vertical



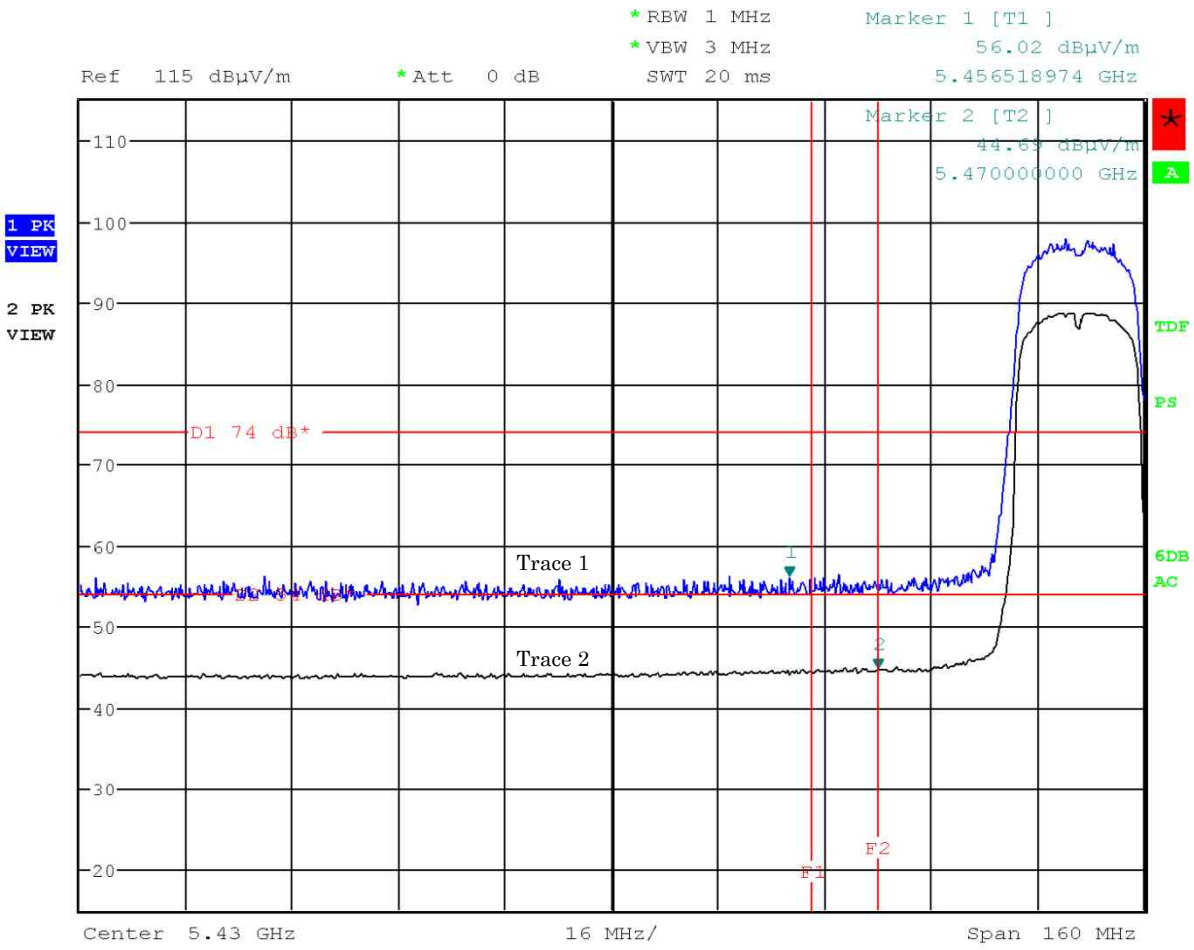

Note: The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : TX mode (802.11n: 20 MHz BW, 100ch: 5500 MHz)
Antenna Polarization : Horizontal



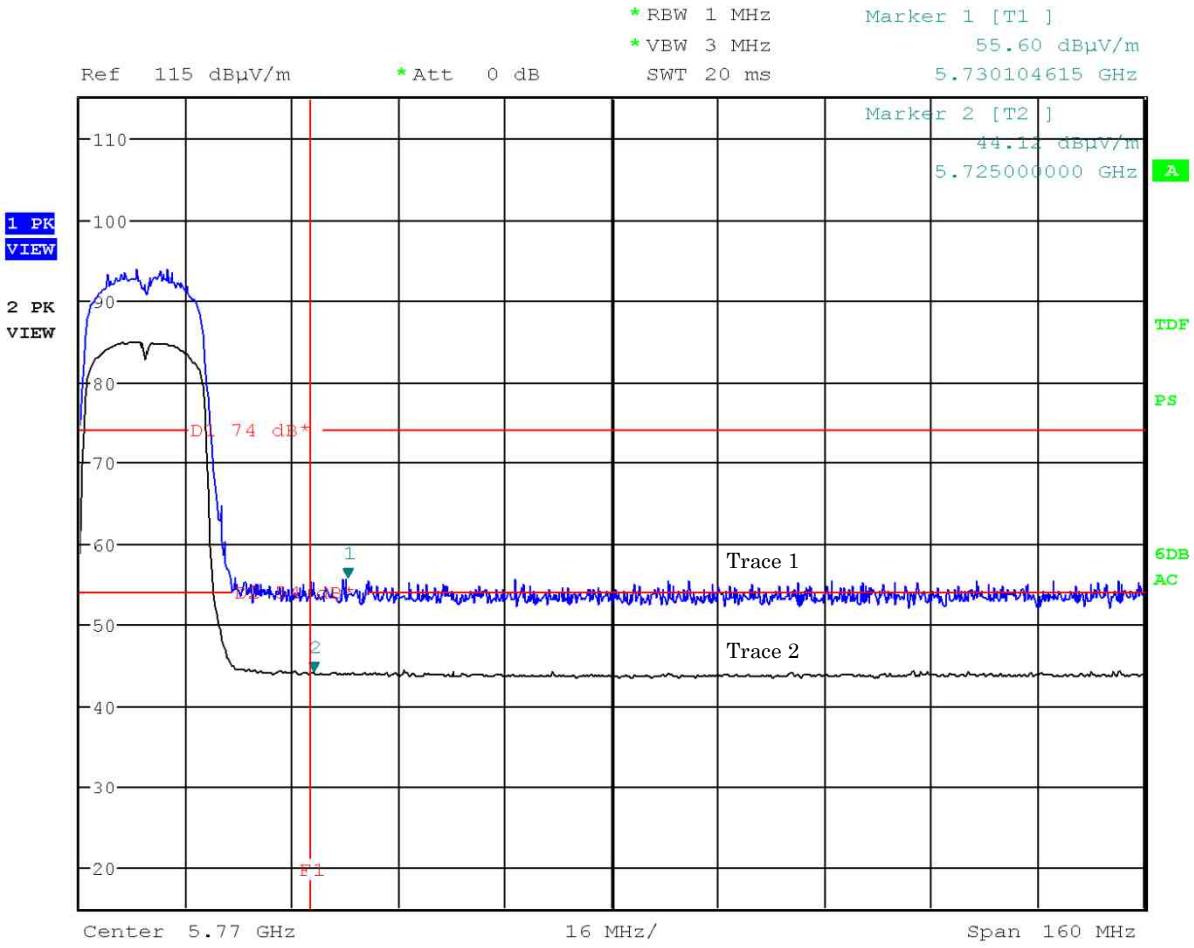

Note: The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : TX mode (802.11n: 20 MHz BW, 100ch: 5500 MHz)
Antenna Polarization : Vertical



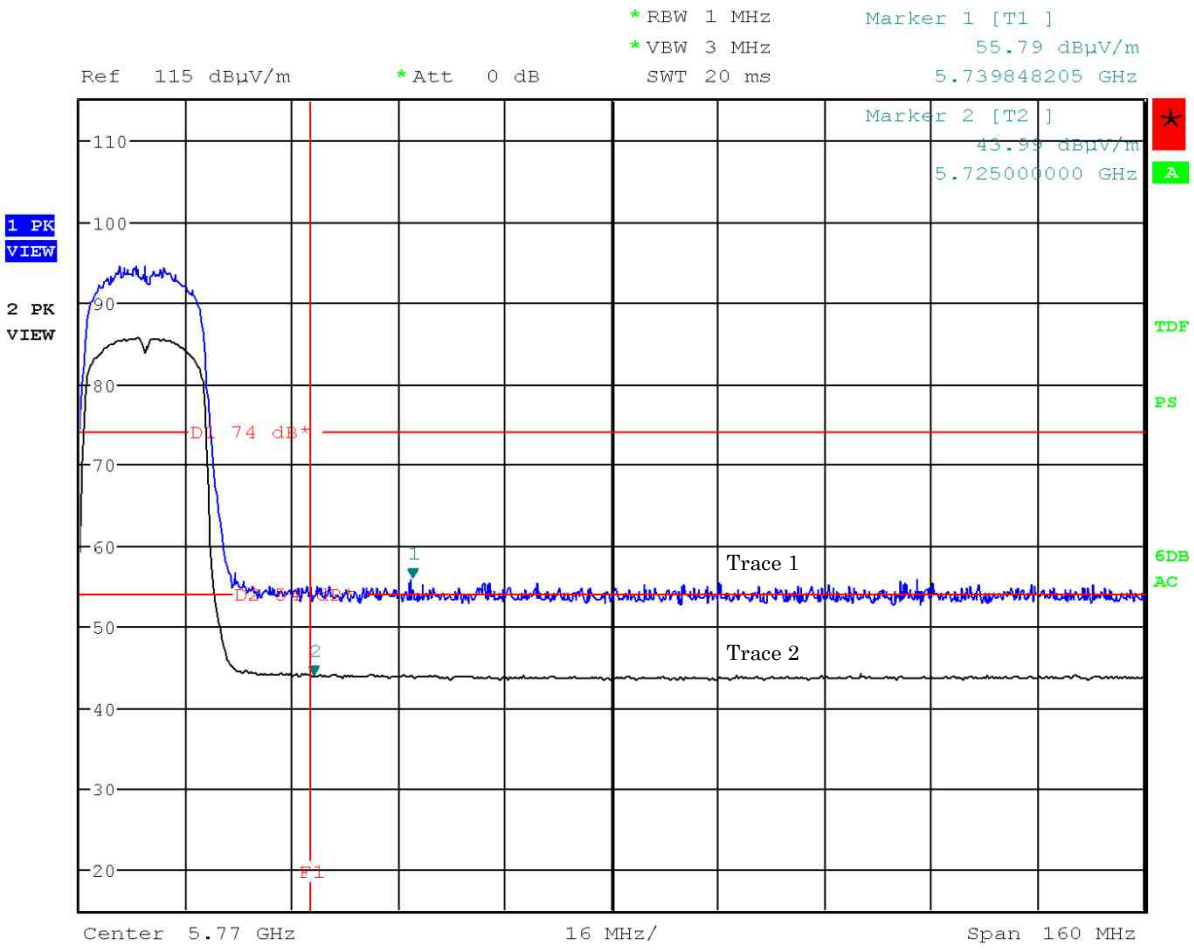

Note: The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : TX mode (802.11n: 20 MHz BW, 140ch: 5700 MHz)
Antenna Polarization : Horizontal



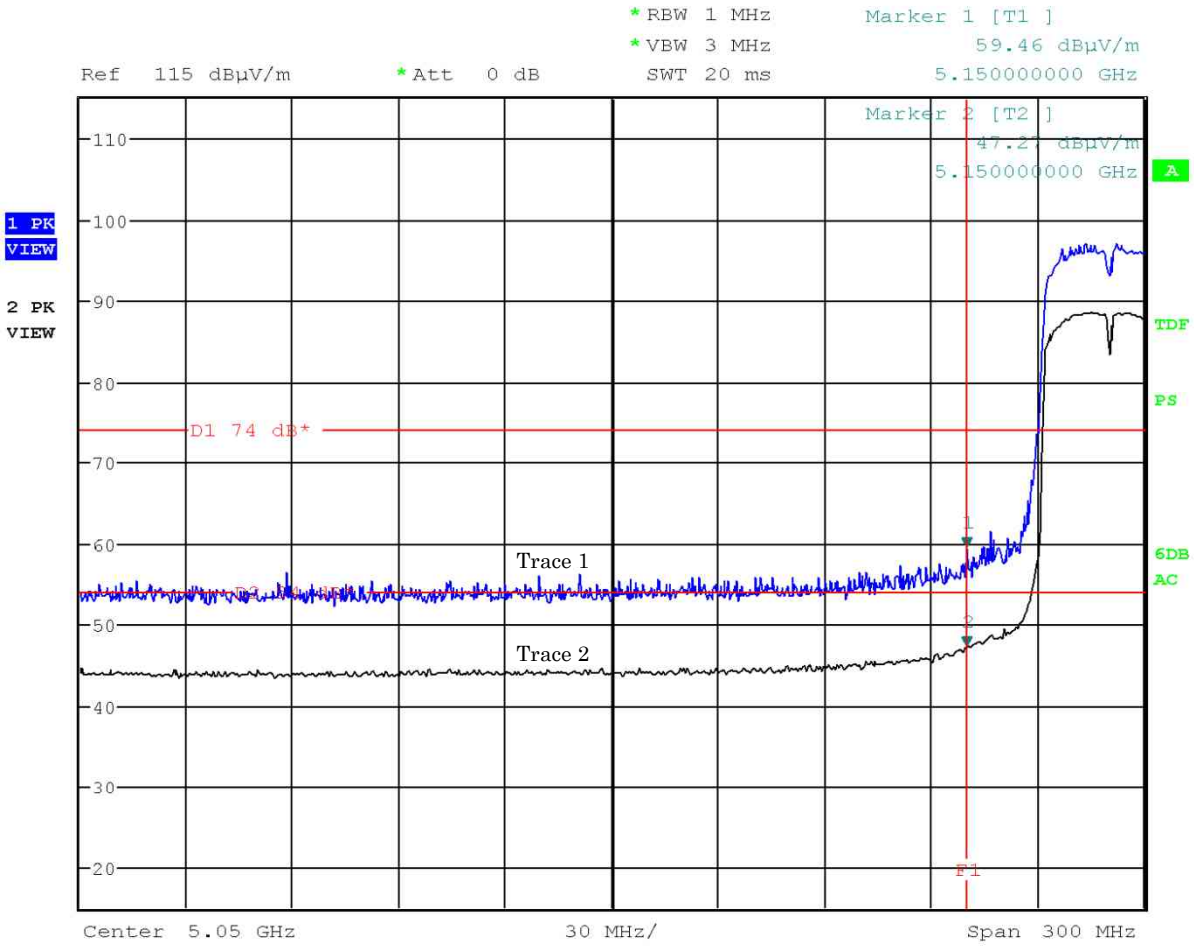

Note: The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : TX mode (802.11n: 20 MHz BW, 140ch: 5700 MHz)
Antenna Polarization : Vertical



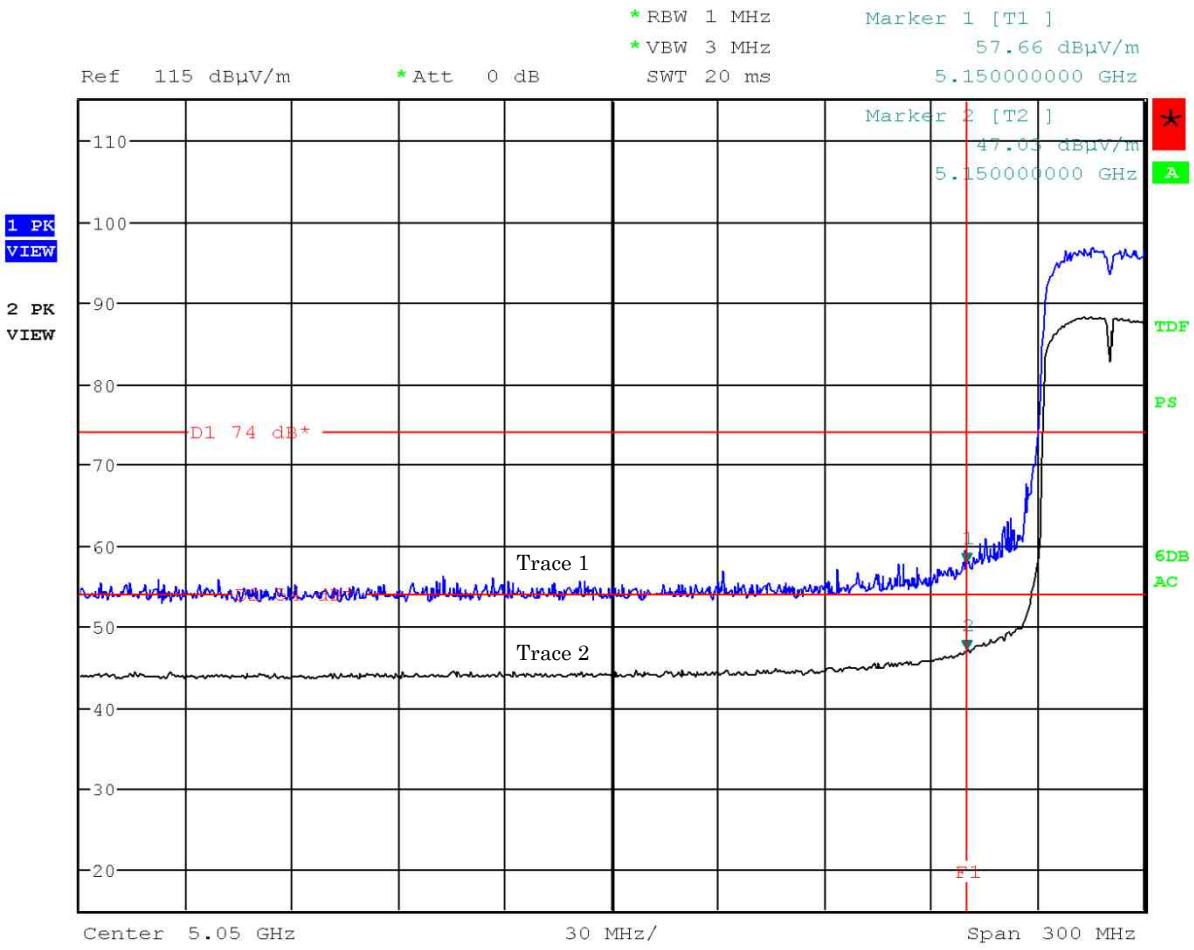

Note: The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : TX mode ( 802.11n: 40 MHz BW, 38ch: 5190 MHz)
Antenna Polarization : Horizontal



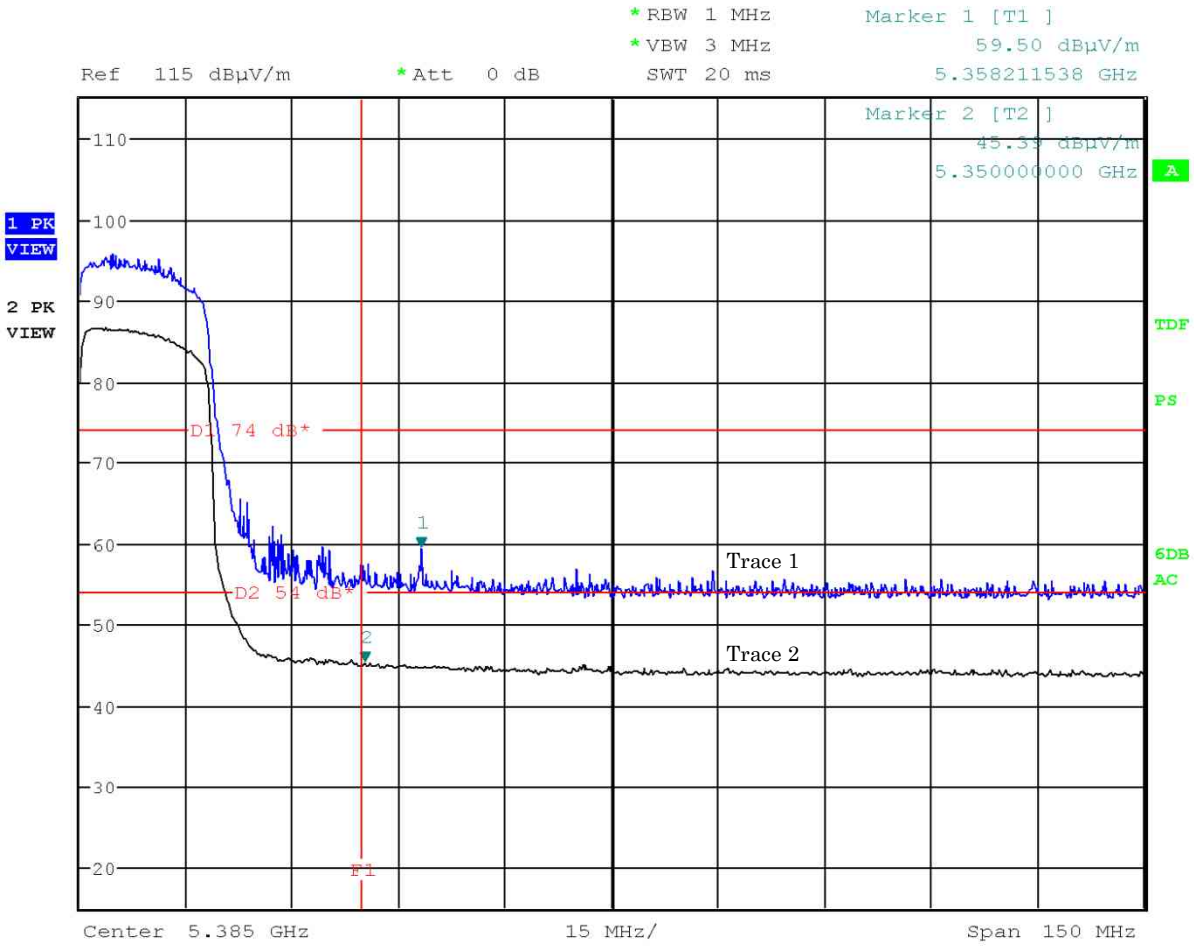

Note: The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : TX mode ( 802.11n: 40 MHz BW, 38ch: 5190 MHz)
Antenna Polarization : Vertical



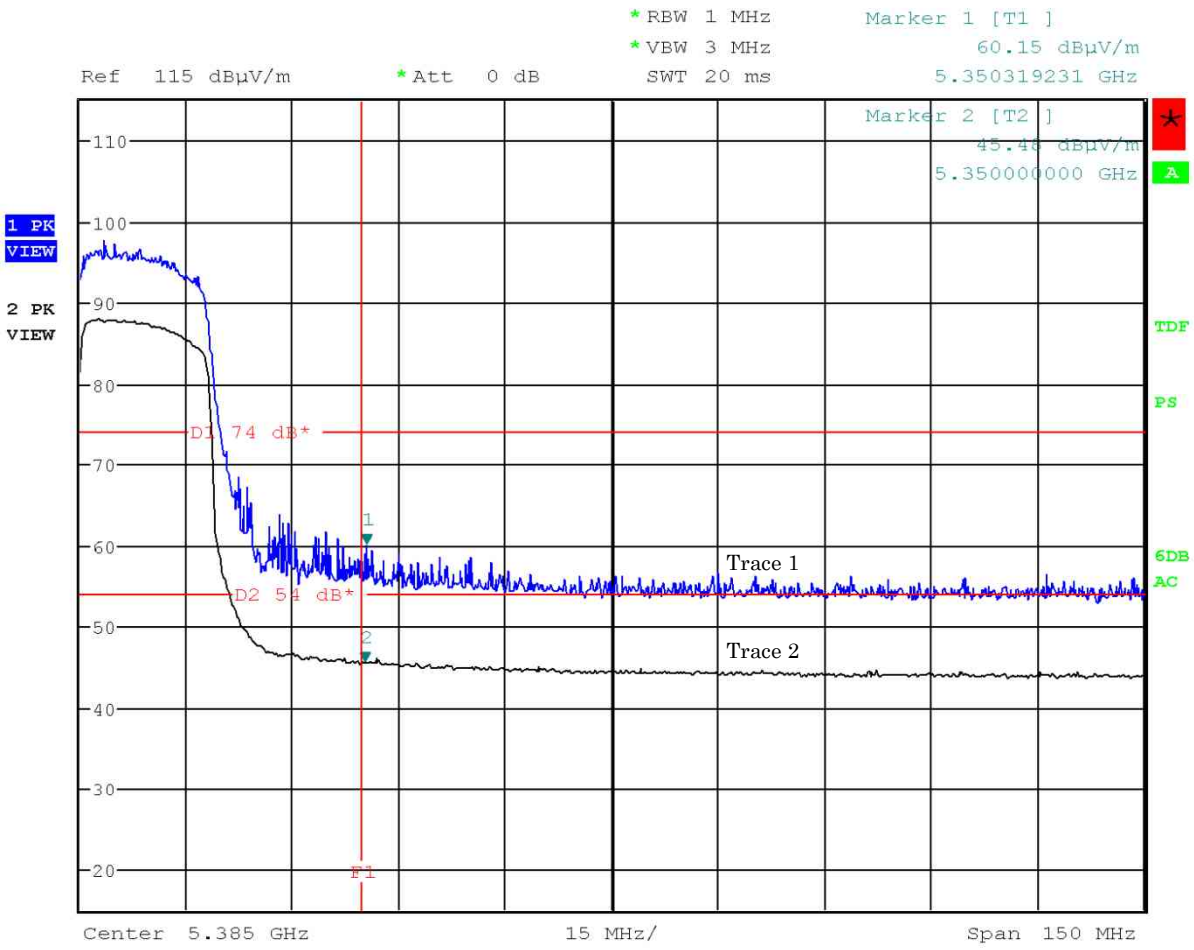

Note: The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : TX mode ( 802.11n: 40 MHz BW, 62ch: 5310 MHz)
Antenna Polarization : Horizontal



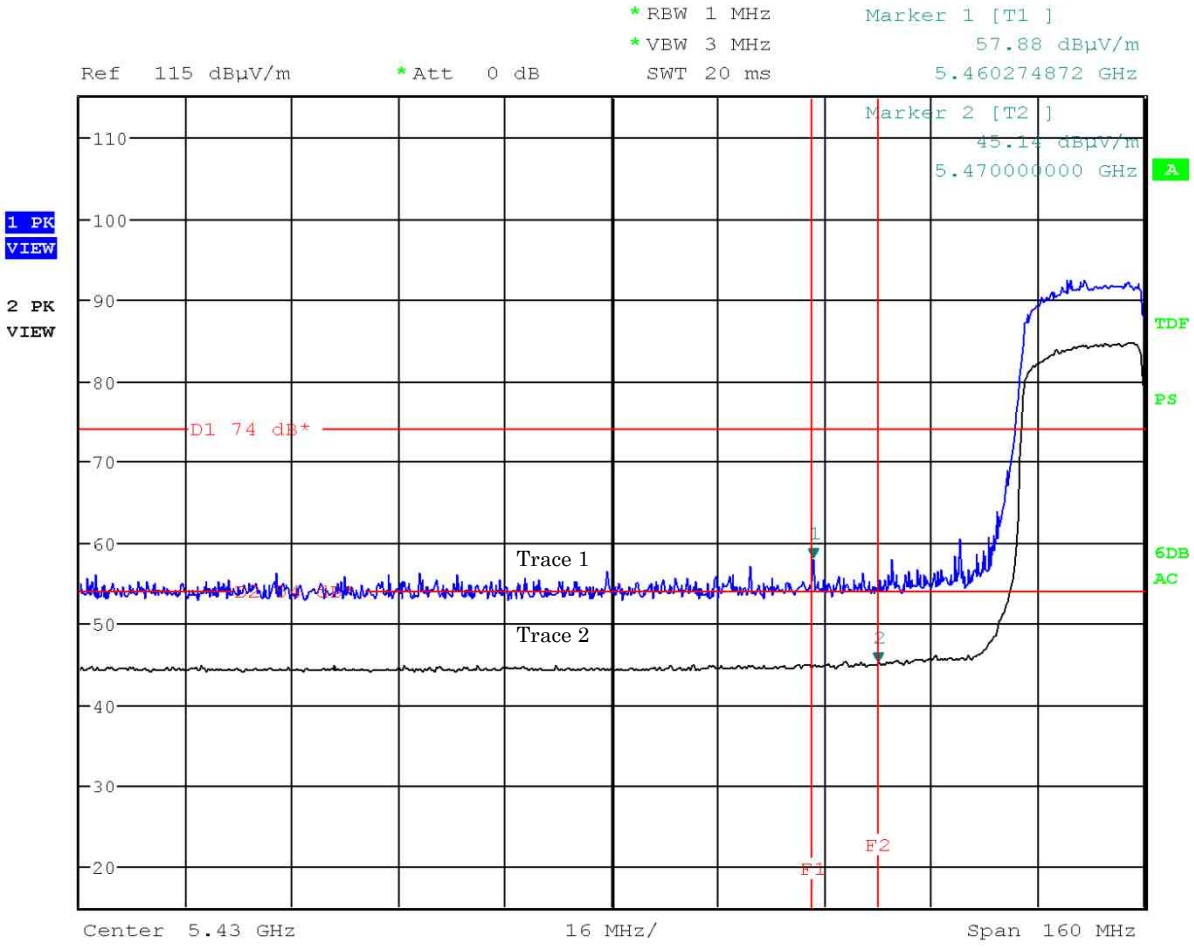

Note: The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : TX mode ( 802.11n: 40 MHz BW, 62ch: 5310 MHz)
Antenna Polarization : Vertical



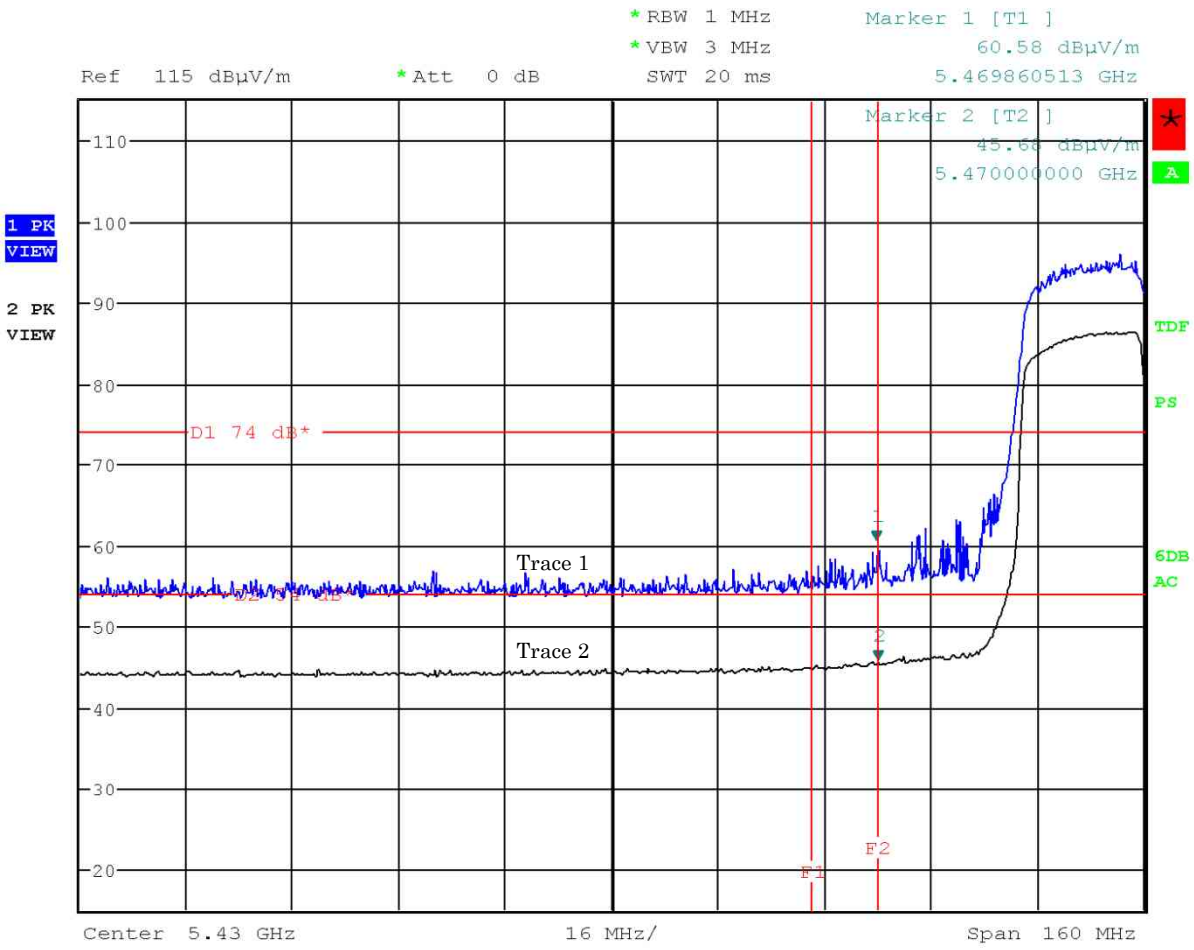

Note: The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : TX mode ( 802.11n: 40 MHz BW, 102ch: 5510 MHz)
Antenna Polarization : Horizontal



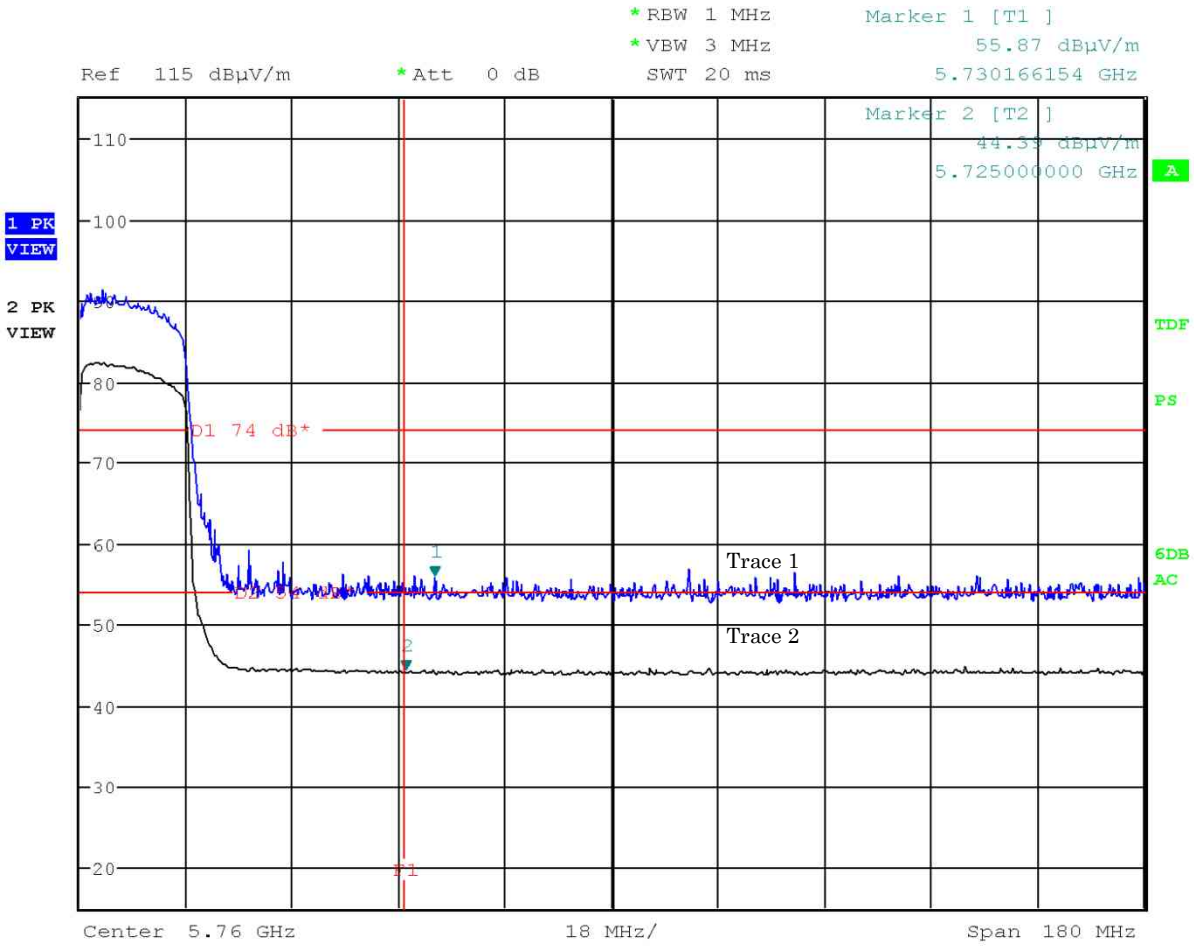

Note: The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : TX mode ( 802.11n: 40 MHz BW, 102ch: 5510 MHz)
Antenna Polarization : Vertical



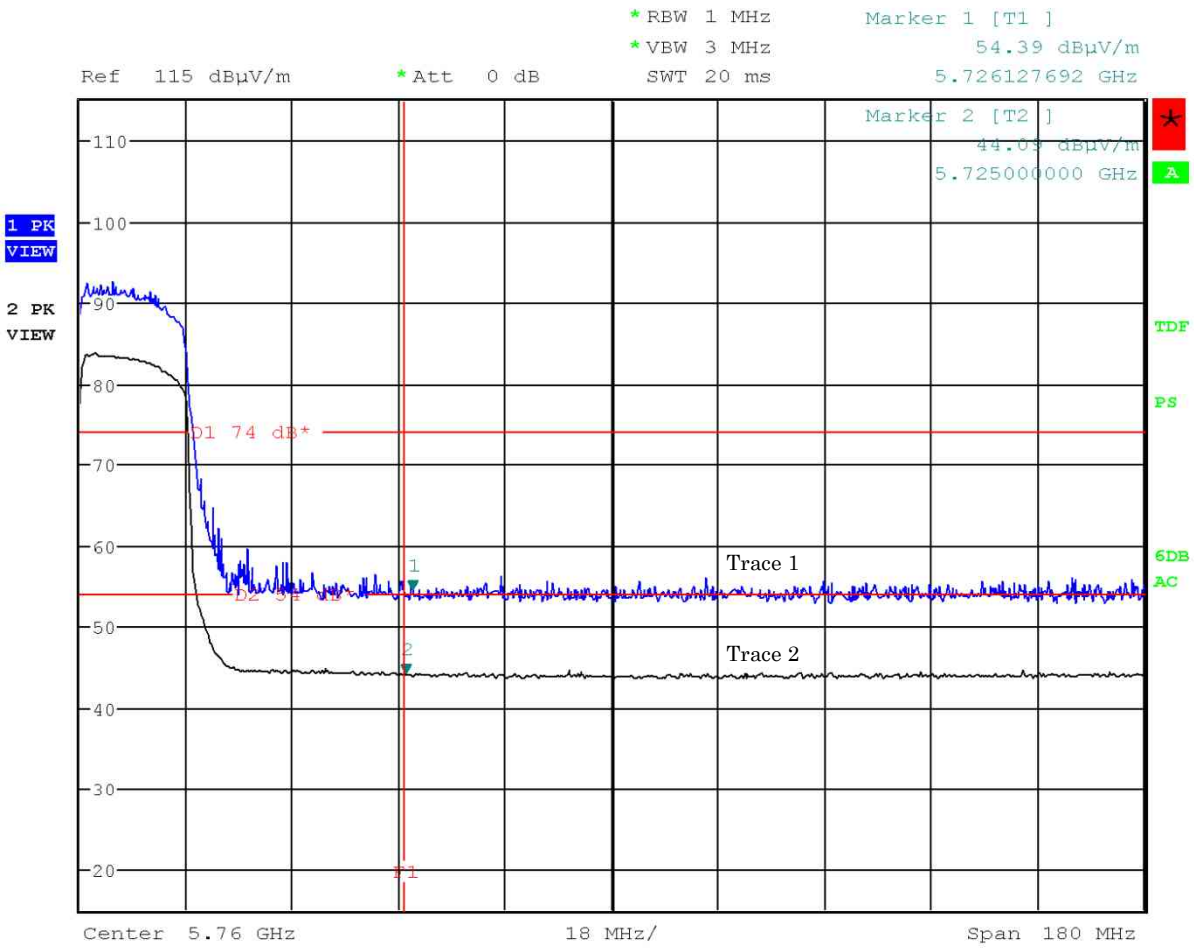

Note: The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : TX mode ( 802.11n: 40 MHz BW, 134ch: 5670 MHz)
Antenna Polarization : Horizontal



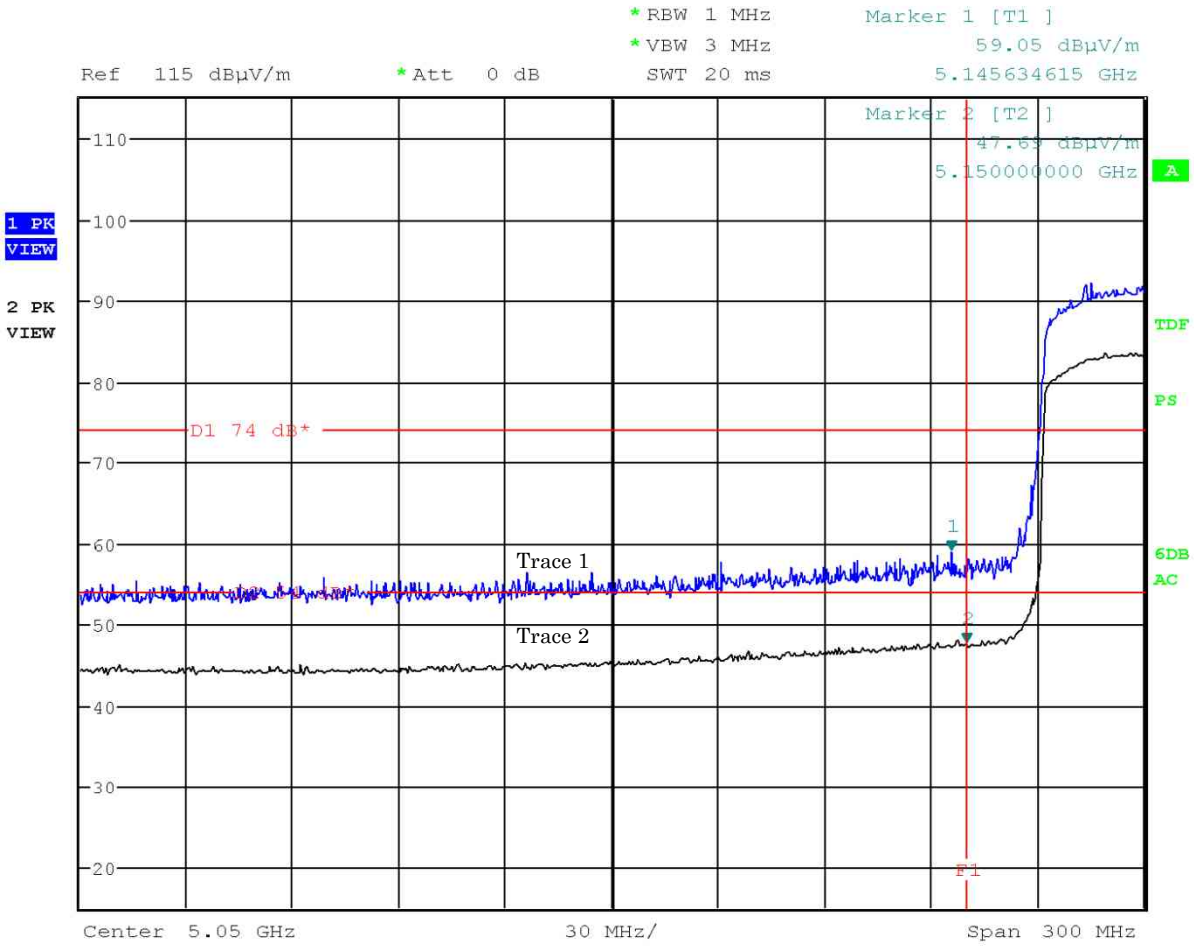

Note: The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : TX mode ( 802.11n: 40 MHz BW, 134ch: 5670 MHz)
Antenna Polarization : Vertical



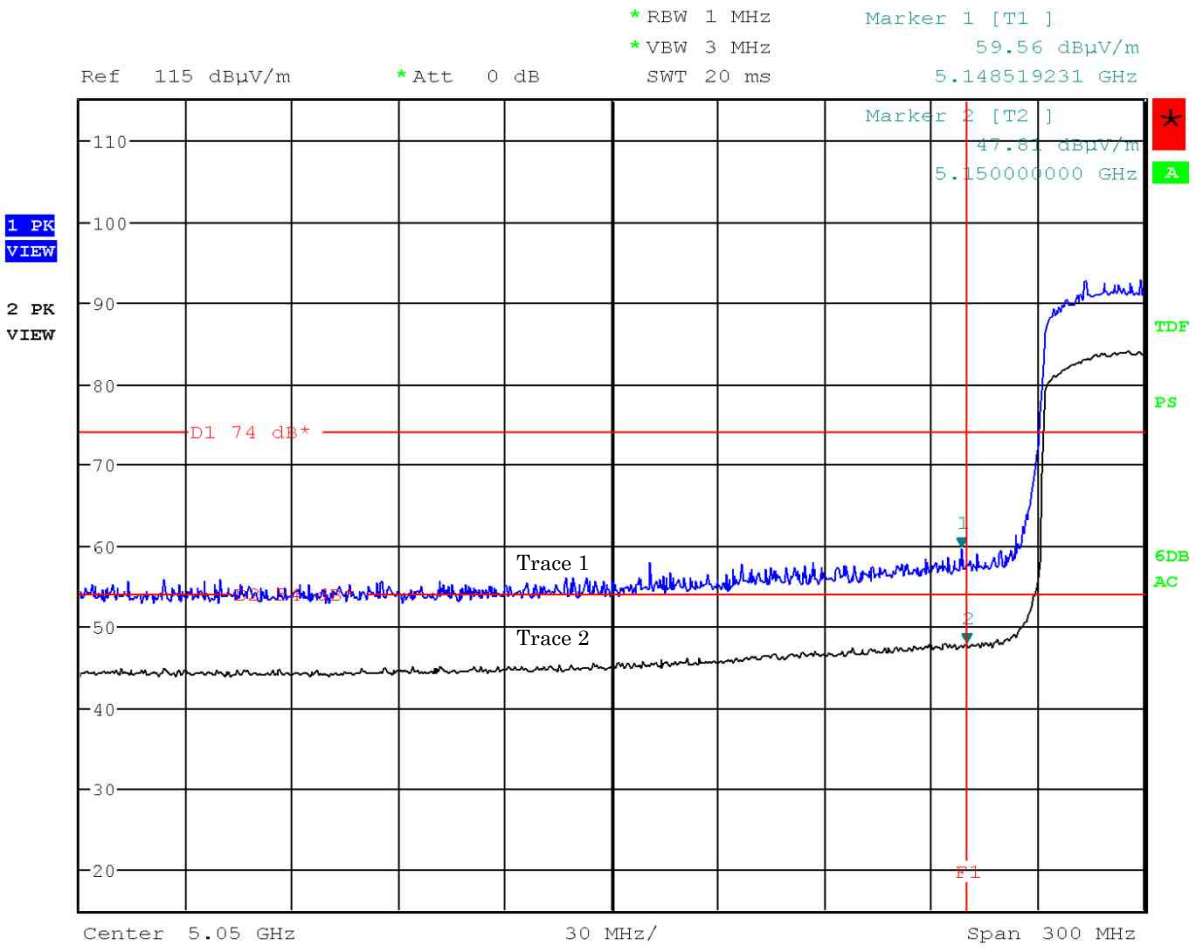

Note: The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : TX mode ( 802.11ac: 80 MHz BW, 42ch: 5210 MHz)
Antenna Polarization : Horizontal



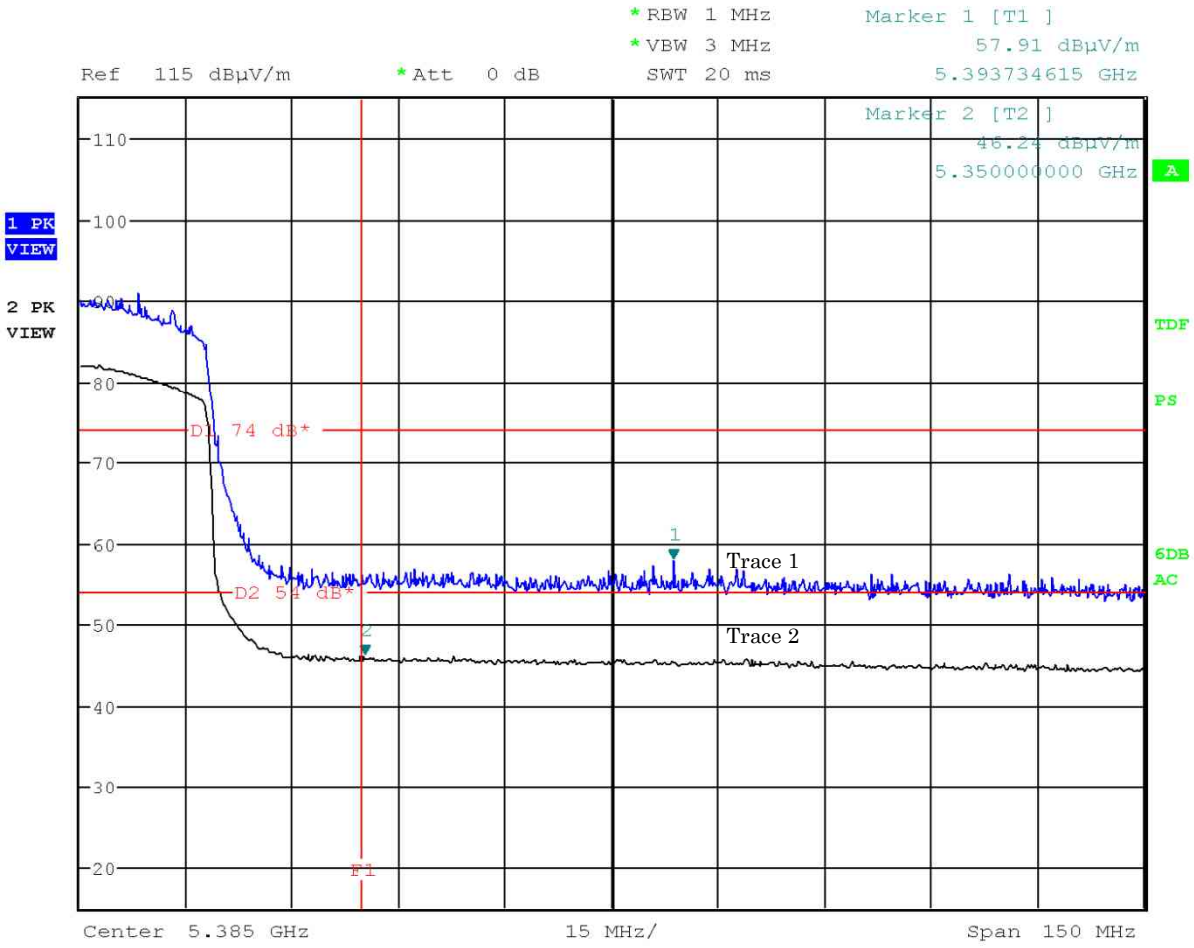

Note: The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : TX mode ( 802.11ac: 80 MHz BW, 42ch: 5210 MHz)
Antenna Polarization : Vertical



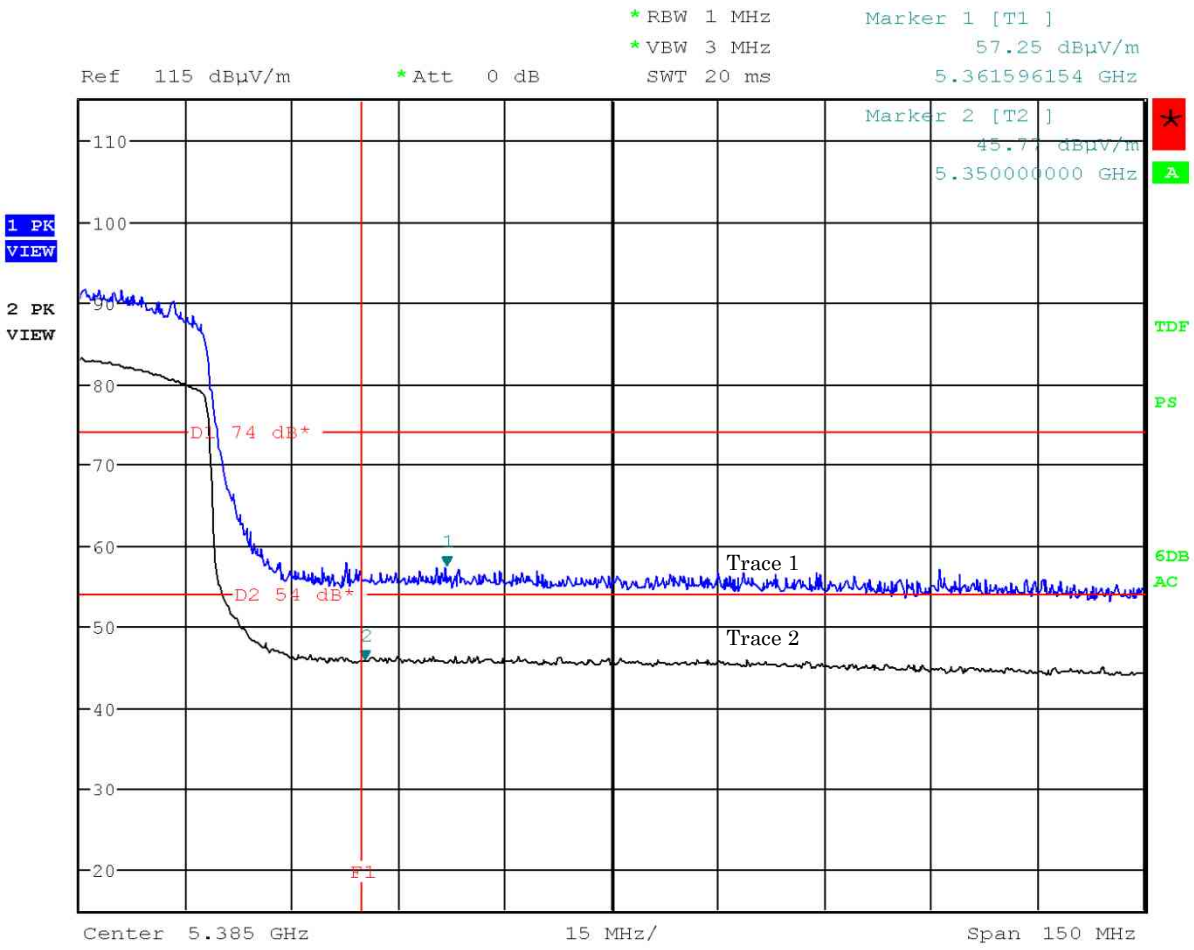

Note: The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : TX mode ( 802.11ac: 80 MHz BW, 58ch: 5290 MHz)
Antenna Polarization : Horizontal



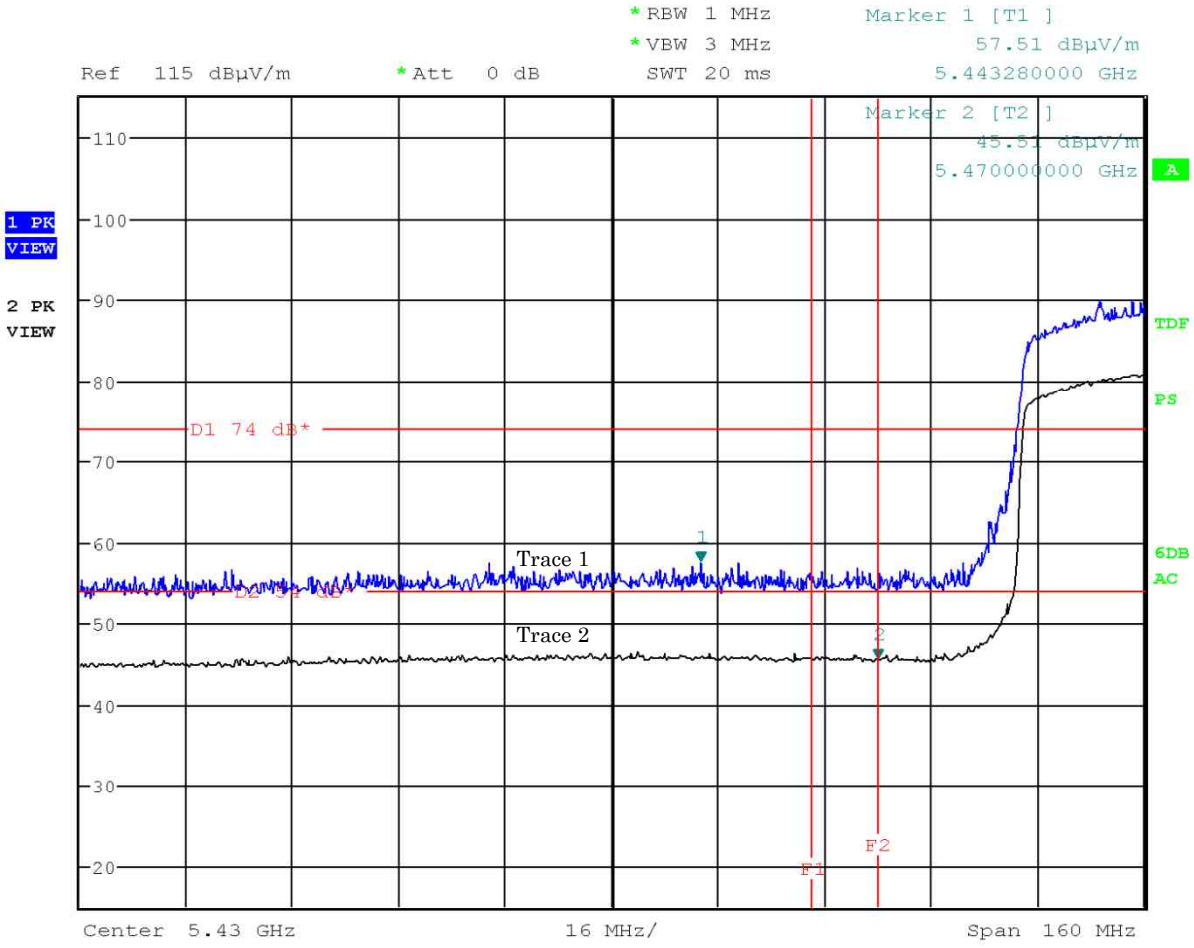

Note: The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : TX mode ( 802.11ac: 80 MHz BW, 58ch: 5290 MHz)
Antenna Polarization : Vertical



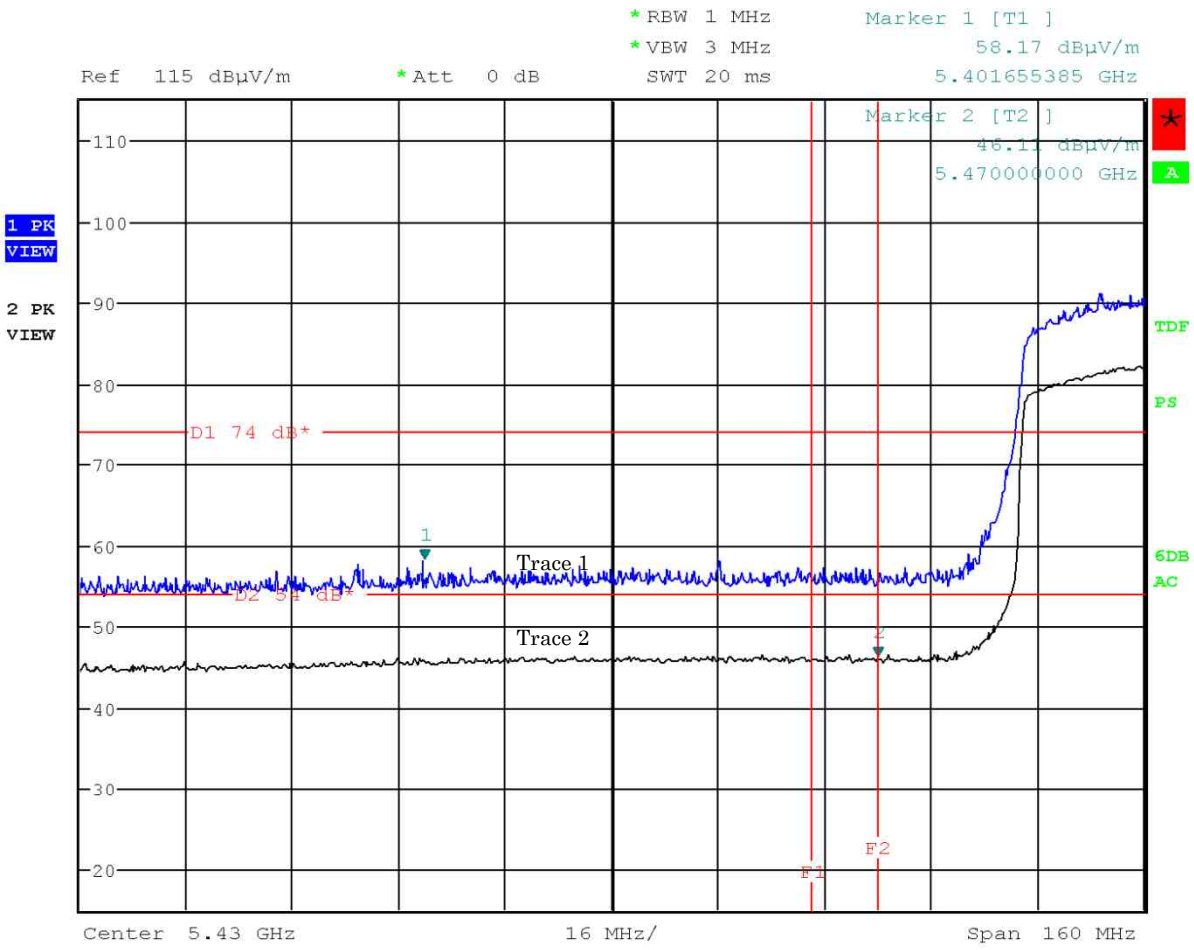

Note: The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : TX mode ( 802.11ac: 80 MHz BW, 106ch: 5530 MHz)
Antenna Polarization : Horizontal




Note: The trace 1 is Peak . The trace 2 is Average.

Mode of EUT : TX mode ( 802.11ac: 80 MHz BW, 106ch: 5530 MHz)
Antenna Polarization : Vertical




Note: The trace 1 is Peak . The trace 2 is Average.

### 7.6.4.2 Unwanted Radiated Emission 9 kHz – 30 MHz

Test Date : September 16, 2015
Temp.:23°C, Humi:65%

Mode of EUT : All mode have been investigated in accordance with clause 6.3 in this report.
Results : No spurious emissions in the range 20dB below the limit.

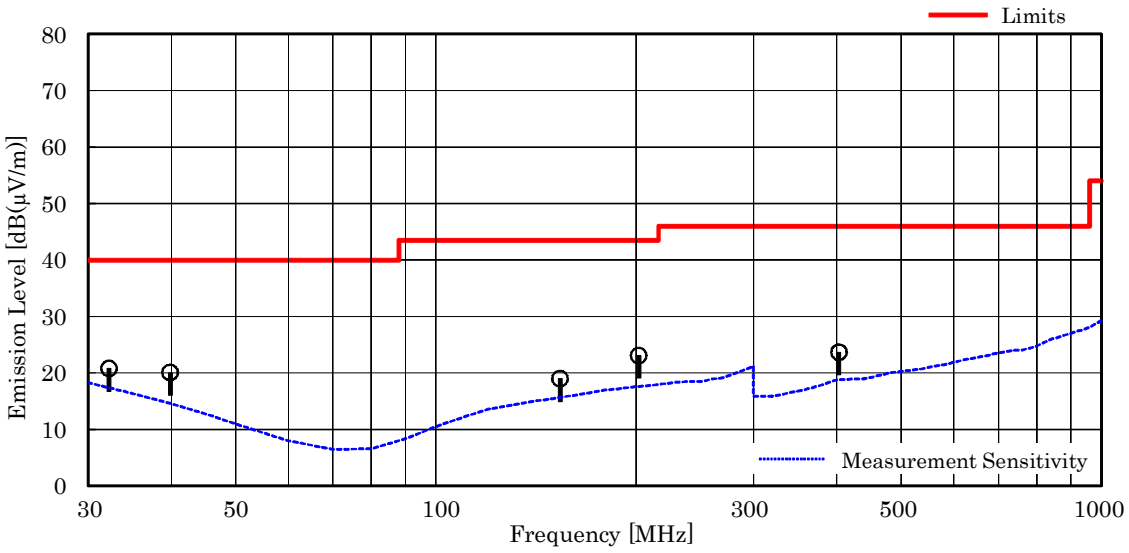
### 7.6.4.3 Unwanted Radiated Emission 30 MHz – 1000 MHz

Mode of EUT : All modes have been investigated and the worst case mode for channel (36ch: 5180MHz / IEEE802.11a) has been listed.

Test Date: September 24, 2015
Temp.: 24 °C, Humi: 66 %

**Antenna pole : Horizontal**

| Frequency [MHz] | Antenna Factor [dB(1/m)] | Corr. Factor [dB] | Meter Readings [dB(μV)] | Limits [dB(μV/m)] | Results [dB(μV/m)] | Margin [dB] | Remarks |
|---|---|---|---|---|---|---|---|
| 32.26 | 17.9 | -27.5 | 30.4 | 40.0 | 20.8 | +19.2 | - |
| 39.86 | 15.1 | -27.4 | 32.4 | 40.0 | 20.1 | +19.9 | - |
| 96.62 | 9.5 | -26.7 | < 27.0 | 43.5 | < 9.8 | > +33.7 | - |
| 153.60 | 14.8 | -26.2 | 30.4 | 43.5 | 19.0 | +24.5 | - |
| 201.67 | 16.4 | -25.8 | 32.5 | 43.5 | 23.1 | +20.4 | - |
| 403.35 | 16.5 | -24.6 | 31.8 | 46.0 | 23.7 | +22.3 | - |

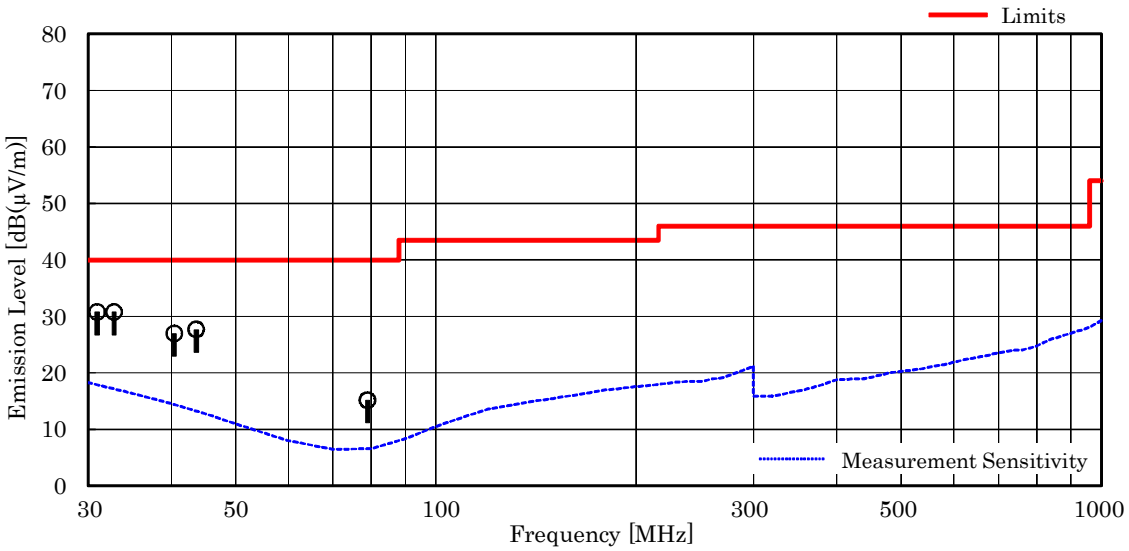



NOTES
1. Test Distance : 3 m
2. The spectrum was checked from 30 MHz to 1000 MHz.
3. The correction factor is composed of cable loss, pad attenuation and/or amplifier gain.
4. The symbol of "<" means "or less".
5. The symbol of ">" means "more than".
6. Calculated result at 32.26 MHz, as the worst point shown on underline:
   Antenna Factor + Coorection Factor + Meter Reading = 17.9 + (-27.5) + 30.4 = 20.8 dB(μV/m)
   Antenna Height : 3.85 m, Turntable Angle : 272 °
7. Test receiver setting(s) : CISPR QP 120 kHz (QP : Quasi-Peak)

Test Date: September 24, 2015
Temp.: 24 °C, Humi: 66 %

**Antenna pole : Horizontal**

| Frequency [MHz] | Antenna Factor [dB(1/m)] | Corr. Factor [dB] | Meter Readings [dB(μV)] | Limits [dB(μV/m)] | Results [dB(μV/m)] | Margin [dB] | Remarks |
|---|---|---|---|---|---|---|---|
| 30.97 | 18.4 | -27.5 | 39.9 | 40.0 | 30.8 | + 9.2 | - |
| 32.83 | 17.6 | -27.5 | 40.7 | 40.0 | 30.8 | + 9.2 | - |
| 40.45 | 14.8 | -27.3 | 39.5 | 40.0 | 27.0 | +13.0 | - |
| 43.64 | 13.6 | -27.3 | 41.4 | 40.0 | 27.7 | +12.3 | - |
| 78.89 | 6.4 | -26.9 | 35.7 | 40.0 | 15.2 | +24.8 | - |




NOTES
1. Test Distance : 3 m
2. The spectrum was checked from 30 MHz to 1000 MHz.
3. The correction factor is composed of cable loss, pad attenuation and/or amplifier gain.
4. The symbol of "<" means "or less".
5. The symbol of ">" means "more than".
6. Calculated result at 32.83 MHz, as the worst point shown on underline:
   Antenna Factor + Coorection Factor + Meter Reading = 17.6 + (-27.5) + 40.7 = 30.8 dB(μV/m)
   Antenna Height : 1.00 m, Turntable Angle : 20 °
7. Test receiver setting(s) : CISPR QP 120 kHz (QP : Quasi-Peak)

### 7.6.4.4 Unwanted Radiated Emission( Above 1 GHz)

#### 7.6.4.4.1 Mode of TX

#### 7.6.4.4.1.1 802.11a Radiated Emission Above 1 GHz

Mode of EUT : TX mode ( 802.11a, 5150 - 5250 MHz Band)

Test Date: September 29, 2015
Temp.: 23 °C, Humi: 59 %

| Frequency [MHz] | Antenna Factor [dB(1/m)] | Corr. Factor [dB] | Meter Readings [dB(μV)] Horizontal PK | Horizontal AVE | Vertical PK | Vertical AVE | Limits [dB(μV/m)] PK | Limits AVE | Results [dB(μV/m)] PK | Results AVE | Margin [dB] | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Test condition : Tx 36 Ch** | | | | | | | | | | | | |
| 6906.6 | 29.9 | -15.9 | 40.1 | 35.7 | 39.6 | 34.7 | 74.0 | 54.0 | 54.1 | 49.7 | + 4.3 | |
| 10360.0 | 33.4 | -25.1 | < 38.0 | < 28.0 | < 38.0 | < 28.0 | 74.0 | 54.0 | < 46.3 | < 36.3 | > +17.7 | |
| 15540.0 | 37.2 | -25.9 | < 38.0 | < 28.0 | < 38.0 | < 28.0 | 74.0 | 54.0 | < 49.3 | < 39.3 | > +14.7 | |
| 20720.0 | 40.2 | -43.1 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 47.1 | < 37.1 | > +16.9 | |
| 25900.0 | 40.8 | -41.8 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 49.0 | < 39.0 | > +15.0 | |
| 31080.0 | 43.9 | -54.5 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 39.4 | < 29.4 | > +24.6 | |
| 36260.0 | 44.2 | -48.5 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 45.7 | < 35.7 | > +18.3 | |
| **Test condition : Tx 44 Ch** | | | | | | | | | | | | |
| 6960.0 | 29.9 | -16.0 | 40.6 | 35.7 | 39.1 | 34.4 | 74.0 | 54.0 | 54.5 | 49.6 | + 4.4 | |
| 10440.0 | 33.4 | -25.0 | < 38.0 | < 28.0 | < 38.0 | < 28.0 | 74.0 | 54.0 | < 46.4 | < 36.4 | > +17.6 | |
| 15660.0 | 37.2 | -25.9 | < 38.0 | < 28.0 | < 38.0 | < 28.0 | 74.0 | 54.0 | < 49.3 | < 39.3 | > +14.7 | |
| 20880.0 | 40.3 | -43.1 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 47.2 | < 37.2 | > +16.8 | |
| 26100.0 | 40.7 | -41.7 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 49.0 | < 39.0 | > +15.0 | |
| 31320.0 | 43.8 | -54.5 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 39.3 | < 29.3 | > +24.7 | |
| 36540.0 | 44.4 | -48.0 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 46.4 | < 36.4 | > +17.6 | |
| **Test condition : Tx 48 Ch** | | | | | | | | | | | | |
| 6986.6 | 29.9 | -15.9 | 40.2 | 35.6 | 39.4 | 34.2 | 74.0 | 54.0 | 54.2 | 49.6 | + 4.4 | |
| 10480.0 | 33.4 | -24.9 | < 38.0 | < 28.0 | < 38.0 | < 28.0 | 74.0 | 54.0 | < 46.5 | < 36.5 | > +17.5 | |
| 15720.0 | 37.3 | -25.8 | < 38.0 | < 28.0 | < 38.0 | < 28.0 | 74.0 | 54.0 | < 49.5 | < 39.5 | > +14.5 | |
| 20960.0 | 40.3 | -43.1 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 47.2 | < 37.2 | > +16.8 | |
| 26200.0 | 40.7 | -41.6 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 49.1 | < 39.1 | > +14.9 | |
| 31440.0 | 43.8 | -54.6 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 39.2 | < 29.2 | > +24.8 | |
| 36680.0 | 44.5 | -48.1 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 46.4 | < 36.4 | > +17.6 | |

Calculated result at 6906.6 MHz, as the worst point shown on underline:

| | | | |
|---|---|---|---|
| | Antenna Factor | = | 29.9 dB(1/m) |
| | Corr. Factor | = | -15.9 dB |
| + ) | Meter Reading | = | 35.7 dB(μV) |
| | Result | = | 49.7 dB(μV/m) |

Minimum Margin: 54.0 - 49.7 = 4.3 (dB)

NOTES
1. Test Distance : 3 m (1 GHz to 26.5 GHz) / 1m (26.5 GHz to 40 GHz)
2. The spectrum was checked from 1 GHz to 40 GHz.
3. The correction factor is shown as follows:
   Corr. Factor [dB] = Cable Loss + 20dB Pad Att. - Pre-Amp. Gain [dB] (1.0 - 7.6GHz)
   Corr. Factor [dB] = Cable Loss + 10dB Pad Att. - Pre-Amp. Gain [dB] (7.6 - 18.0GHz)
   Corr. Factor [dB] = Cable Loss - Pre-Amp. Gain [dB] (18 - 26.5GHz)
   Corr. Factor [dB] = Cable Loss - Pre-Amp. Gain - Distance Factor [dB] (over 26.5GHz)
4. The symbol of "<" means "or less".
5. The symbol of ">" means "more than".
6. PK : Peak / AVE : Average

Mode of EUT : TX mode ( 802.11a, 5250 – 5350 MHz Band)

Test Date: September 29, 2015
Temp.: 23 °C, Humi: 59 %

| Frequency [MHz] | Antenna Factor [dB(1/m)] | Corr. Factor [dB] | Meter Readings [dB(μV)] Horizontal PK | Horizontal AVE | Vertical PK | Vertical AVE | Limits [dB(μV/m)] PK | Limits AVE | Results [dB(μV/m)] PK | Results AVE | Margin [dB] | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Test condition : Tx 52 Ch** | | | | | | | | | | | | |
| 7013.3 | 29.9 | -15.9 | 40.1 | 35.9 | 39.2 | 34.4 | 74.0 | 54.0 | 54.1 | 49.9 | + 4.1 | |
| 10520.0 | 33.4 | -24.9 | < 38.0 | < 28.0 | < 38.0 | < 28.0 | 74.0 | 54.0 | < 46.5 | < 36.5 | > +17.5 | |
| 15780.0 | 37.3 | -25.7 | < 38.0 | < 28.0 | < 38.0 | < 28.0 | 74.0 | 54.0 | < 49.6 | < 39.6 | > +14.4 | |
| 21040.0 | 40.3 | -43.2 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 47.1 | < 37.1 | > +16.9 | |
| 26300.0 | 40.7 | -41.5 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 49.2 | < 39.2 | > +14.8 | |
| 31560.0 | 43.8 | -54.6 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 39.2 | < 29.2 | > +24.8 | |
| 36820.0 | 44.5 | -47.7 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 46.8 | < 36.8 | > +17.2 | |
| **Test condition : Tx 56 Ch** | | | | | | | | | | | | |
| 7039.9 | 29.9 | -15.9 | 40.0 | 35.5 | 39.2 | 34.3 | 74.0 | 54.0 | 54.0 | 49.5 | + 4.5 | |
| 10560.0 | 33.4 | -24.8 | < 38.0 | < 28.0 | < 38.0 | < 28.0 | 74.0 | 54.0 | < 46.6 | < 36.6 | > +17.4 | |
| 15840.0 | 37.3 | -25.7 | < 38.0 | < 28.0 | < 38.0 | < 28.0 | 74.0 | 54.0 | < 49.6 | < 39.6 | > +14.4 | |
| 21120.0 | 40.3 | -43.2 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 47.1 | < 37.1 | > +16.9 | |
| 26400.0 | 40.6 | -41.4 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 49.2 | < 39.2 | > +14.8 | |
| 31680.0 | 43.8 | -54.5 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 39.3 | < 29.3 | > +24.7 | |
| 36960.0 | 44.4 | -47.8 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 46.6 | < 36.6 | > +17.4 | |
| **Test condition : Tx 64 Ch** | | | | | | | | | | | | |
| 7093.3 | 30.0 | -15.9 | 40.5 | 36.0 | 39.2 | 34.6 | 74.0 | 54.0 | 54.6 | 50.1 | + 3.9 | |
| 10640.0 | 33.4 | -24.8 | < 38.0 | < 28.0 | < 38.0 | < 28.0 | 74.0 | 54.0 | < 46.6 | < 36.6 | > +17.4 | |
| 15960.0 | 37.4 | -25.7 | < 38.0 | < 28.0 | < 38.0 | < 28.0 | 74.0 | 54.0 | < 49.7 | < 39.7 | > +14.3 | |
| 21280.0 | 40.4 | -43.3 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 47.1 | < 37.1 | > +16.9 | |
| 26600.0 | 43.4 | -60.2 | < 58.0 | < 48.0 | < 58.0 | < 48.0 | 74.0 | 54.0 | < 41.2 | < 31.2 | > +22.8 | |
| 31920.0 | 43.7 | -54.5 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 39.2 | < 29.2 | > +24.8 | |
| 37240.0 | 44.3 | -47.4 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 46.9 | < 36.9 | > +17.1 | |

Calculated result at 7093.3 MHz, as the worst point shown on underline:

| | | | |
|---|---|---|---|
| | Antenna Factor | = | 30.0 dB(1/m) |
| | Corr. Factor | = | -15.9 dB |
| + ) | Meter Reading | = | 36.0 dB(μV) |
| | Result | = | 50.1 dB(μV/m) |

Minimum Margin: 54.0 - 50.1 = 3.9 (dB)

NOTES
1. Test Distance : 3 m (1 GHz to 26.5 GHz) / 1m (26.5 GHz to 40 GHz)
2. The spectrum was checked from 1 GHz to 40 GHz.
3. The correction factor is shown as follows:
   Corr. Factor [dB] = Cable Loss + 20dB Pad Att. - Pre-Amp. Gain [dB] (1.0 - 7.6GHz)
   Corr. Factor [dB] = Cable Loss + 10dB Pad Att. - Pre-Amp. Gain [dB] (7.6 - 18.0GHz)
   Corr. Factor [dB] = Cable Loss - Pre-Amp. Gain [dB] (18 - 26.5GHz)
   Corr. Factor [dB] = Cable Loss - Pre-Amp. Gain - Distance Factor [dB] (over 26.5GHz)
4. The symbol of "<" means "or less".
5. The symbol of ">" means "more than".
6. PK : Peak / AVE : Average

Mode of EUT : TX mode ( 802.11a, 5470 – 5725 MHz Band)

Test Date: September 29, 2015
Temp.: 23 °C, Humi: 59 %

| Frequency [MHz] | Antenna Factor [dB(1/m)] | Corr. Factor [dB] | Meter Readings [dB(μV)] Horizontal PK | Horizontal AVE | Vertical PK | Vertical AVE | Limits [dB(μV/m)] PK | Limits AVE | Results [dB(μV/m)] PK | Results AVE | Margin [dB] | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Test condition : Tx 100 Ch** | | | | | | | | | | | | |
| 7333.3 | 29.9 | -16.0 | 40.4 | 35.7 | 39.2 | 33.9 | 74.0 | 54.0 | 54.3 | 49.6 | + 4.4 | A/B |
| 11000.0 | 33.4 | -24.6 | < 38.0 | < 28.0 | < 38.0 | < 28.0 | 74.0 | 54.0 | < 46.8 | < 36.8 | > +17.2 | A/B |
| 16500.0 | 37.4 | -24.9 | < 38.0 | < 28.0 | < 38.0 | < 28.0 | 74.0 | 54.0 | < 50.5 | < 40.5 | > +13.5 | A/B |
| 22000.0 | 40.5 | -43.0 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 47.5 | < 37.5 | > +16.5 | A/B |
| 27500.0 | 43.9 | -58.8 | < 58.0 | < 48.0 | < 58.0 | < 48.0 | 74.0 | 54.0 | < 43.1 | < 33.1 | > +20.9 | A/B |
| 33000.0 | 44.0 | -53.5 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 40.5 | < 30.5 | > +23.5 | A/B |
| 38500.0 | 44.3 | -43.9 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 50.4 | < 40.4 | > +13.6 | A/B |
| **Test condition : Tx 116 Ch** | | | | | | | | | | | | |
| 7440.0 | 29.8 | -15.9 | 39.8 | 34.8 | 39.0 | 33.7 | 74.0 | 54.0 | 53.7 | 48.7 | + 5.3 | A/B |
| 11160.0 | 33.4 | -24.5 | < 38.0 | < 28.0 | < 38.0 | < 28.0 | 74.0 | 54.0 | < 46.9 | < 36.9 | > +17.1 | A/B |
| 16740.0 | 37.4 | -24.1 | < 38.0 | < 28.0 | < 38.0 | < 28.0 | 74.0 | 54.0 | < 51.3 | < 41.3 | > +12.7 | A/B |
| 22320.0 | 40.6 | -43.2 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 47.4 | < 37.4 | > +16.6 | A/B |
| 27900.0 | 43.8 | -57.7 | < 58.0 | < 48.0 | < 58.0 | < 48.0 | 74.0 | 54.0 | < 44.1 | < 34.1 | > +19.9 | A/B |
| 33480.0 | 44.0 | -53.1 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 40.9 | < 30.9 | > +23.1 | A/B |
| 39060.0 | 44.3 | -41.9 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 52.4 | < 42.4 | > +11.6 | A/B |
| **Test condition : Tx 140 Ch** | | | | | | | | | | | | |
| 7599.9 | 29.8 | -16.1 | 38.7 | 33.3 | 39.1 | 33.3 | 74.0 | 54.0 | 52.8 | 47.0 | + 7.0 | A/B |
| 11400.0 | 33.3 | -24.6 | < 38.0 | < 28.0 | < 38.0 | < 28.0 | 74.0 | 54.0 | < 46.7 | < 36.7 | > +17.3 | A/B |
| 17100.0 | 37.5 | -22.6 | < 38.0 | < 28.0 | < 38.0 | < 28.0 | 74.0 | 54.0 | < 52.9 | < 42.9 | > +11.1 | A/B |
| 22800.0 | 40.5 | -43.4 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 47.1 | < 37.1 | > +16.9 | A/B |
| 28500.0 | 43.8 | -56.4 | < 58.0 | < 48.0 | < 58.0 | < 48.0 | 74.0 | 54.0 | < 45.4 | < 35.4 | > +18.6 | A/B |
| 34200.0 | 44.0 | -51.7 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 42.3 | < 32.3 | > +21.7 | A/B |
| 39900.0 | 44.6 | -41.0 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 53.6 | < 43.6 | > +10.4 | A/B |

Calculated result at 7333.3 MHz, as the worst point shown on underline:

| | | | |
|---|---|---|---|
| | Antenna Factor | = | 29.9 dB(1/m) |
| | Corr. Factor | = | -16.0 dB |
| + ) | Meter Reading | = | 35.7 dB(μV) |
| | Result | = | 49.6 dB(μV/m) |

Minimum Margin: 54.0 - 49.6 = 4.4 (dB)

NOTES
1. Test Distance : 3 m (1 GHz to 26.5 GHz) / 1m (26.5 GHz to 40 GHz)
2. The spectrum was checked from 1 GHz to 40 GHz.
3. The correction factor is shown as follows:
   Corr. Factor [dB] = Cable Loss + 20dB Pad Att. - Pre-Amp. Gain [dB] (1.0 - 7.6GHz)
   Corr. Factor [dB] = Cable Loss + 10dB Pad Att. - Pre-Amp. Gain [dB] (7.6 - 18.0GHz)
   Corr. Factor [dB] = Cable Loss - Pre-Amp. Gain [dB] (18 - 26.5GHz)
   Corr. Factor [dB] = Cable Loss - Pre-Amp. Gain - Distance Factor [dB] (over 26.5GHz)
4. The symbol of "<" means "or less".
5. The symbol of ">" means "more than".
6. PK : Peak / AVE : Average

### 7.6.4.4.1.2 802.11n ( 20 MHz) Radiated Emission Above 1 GHz

Mode of EUT : TX mode (802.11n: 20 MHz BW, 5150 - 5250 MHz Band)

Test Date: September 29, 2015
Temp.: 23 °C, Humi: 59 %

| Frequency | Antenna Factor | Corr. Factor | Meter Readings [dB(μV)] Horizontal | | Meter Readings [dB(μV)] Vertical | | Limits [dB(μV/m)] | | Results [dB(μV/m)] | | Margin [dB] | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [MHz] | [dB(1/m)] | [dB] | PK | AVE | PK | AVE | PK | AVE | PK | AVE | | |
| **Test condition : Tx 36 Ch** | | | | | | | | | | | | |
| 6906.6 | 29.9 | -15.9 | 40.1 | 35.7 | 39.6 | 34.7 | 74.0 | 54.0 | 54.1 | 49.7 | + 4.3 | |
| 10360.0 | 33.4 | -25.1 | < 38.0 | < 28.0 | < 38.0 | < 28.0 | 74.0 | 54.0 | < 46.3 | < 36.3 | > +17.7 | |
| 15540.0 | 37.2 | -25.9 | < 38.0 | < 28.0 | < 38.0 | < 28.0 | 74.0 | 54.0 | < 49.3 | < 39.3 | > +14.7 | |
| 20720.0 | 40.2 | -43.1 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 47.1 | < 37.1 | > +16.9 | |
| 25900.0 | 40.8 | -41.8 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 49.0 | < 39.0 | > +15.0 | |
| 31080.0 | 43.9 | -54.5 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 39.4 | < 29.4 | > +24.6 | |
| 36260.0 | 44.2 | -48.5 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 45.7 | < 35.7 | > +18.3 | |
| **Test condition : Tx 44 Ch** | | | | | | | | | | | | |
| 6960.0 | 29.9 | -16.0 | 40.6 | 35.7 | 39.1 | 34.4 | 74.0 | 54.0 | 54.5 | 49.6 | + 4.4 | |
| 10440.0 | 33.4 | -25.0 | < 38.0 | < 28.0 | < 38.0 | < 28.0 | 74.0 | 54.0 | < 46.4 | < 36.4 | > +17.6 | |
| 15660.0 | 37.2 | -25.9 | < 38.0 | < 28.0 | < 38.0 | < 28.0 | 74.0 | 54.0 | < 49.3 | < 39.3 | > +14.7 | |
| 20880.0 | 40.3 | -43.1 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 47.2 | < 37.2 | > +16.8 | |
| 26100.0 | 40.7 | -41.7 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 49.0 | < 39.0 | > +15.0 | |
| 31320.0 | 43.8 | -54.5 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 39.3 | < 29.3 | > +24.7 | |
| 36540.0 | 44.4 | -48.0 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 46.4 | < 36.4 | > +17.6 | |
| **Test condition : Tx 48 Ch** | | | | | | | | | | | | |
| 6986.6 | 29.9 | -15.9 | 40.2 | 35.6 | 39.4 | 34.2 | 74.0 | 54.0 | 54.2 | 49.6 | + 4.4 | |
| 10480.0 | 33.4 | -24.9 | < 38.0 | < 28.0 | < 38.0 | < 28.0 | 74.0 | 54.0 | < 46.5 | < 36.5 | > +17.5 | |
| 15720.0 | 37.3 | -25.8 | < 38.0 | < 28.0 | < 38.0 | < 28.0 | 74.0 | 54.0 | < 49.5 | < 39.5 | > +14.5 | |
| 20960.0 | 40.3 | -43.1 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 47.2 | < 37.2 | > +16.8 | |
| 26200.0 | 40.7 | -41.6 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 49.1 | < 39.1 | > +14.9 | |
| 31440.0 | 43.8 | -54.6 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 39.2 | < 29.2 | > +24.8 | |
| 36680.0 | 44.5 | -48.1 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 46.4 | < 36.4 | > +17.6 | |

Calculated result at 6906.6 MHz, as the worst point shown on underline:

| | | | |
|---|---|---|---|
| | Antenna Factor | = | 29.9 dB(1/m) |
| | Corr. Factor | = | -15.9 dB |
| + ) | Meter Reading | = | 35.7 dB(μV) |
| | Result | = | 49.7 dB(μV/m) |

Minimum Margin: 54.0 - 49.7 = 4.3 (dB)

NOTES
1. Test Distance : 3 m (1 GHz to 26.5 GHz) / 1m (26.5 GHz to 40 GHz)
2. The spectrum was checked from 1 GHz to 40 GHz.
3. The correction factor is shown as follows:
   Corr. Factor [dB] = Cable Loss + 20dB Pad Att. - Pre-Amp. Gain [dB] (1.0 - 7.6GHz)
   Corr. Factor [dB] = Cable Loss + 10dB Pad Att. - Pre-Amp. Gain [dB] (7.6 - 18.0GHz)
   Corr. Factor [dB] = Cable Loss - Pre-Amp. Gain [dB] (18 - 26.5GHz)
   Corr. Factor [dB] = Cable Loss - Pre-Amp. Gain - Distance Factor [dB] (over 26.5GHz)
4. The symbol of "<" means "or less".
5. The symbol of ">" means "more than".
6. PK : Peak / AVE : Average

Mode of EUT : TX mode ( 802.11n: 20 MHz BW, 5250 – 5350 MHz Band)

Test Date: September 29, 2015
Temp.: 23 °C, Humi: 59 %

| Frequency [MHz] | Antenna Factor [dB(1/m)] | Corr. Factor [dB] | Meter Readings [dB(μV)] Horizontal PK | Horizontal AVE | Vertical PK | Vertical AVE | Limits [dB(μV/m)] PK | Limits AVE | Results [dB(μV/m)] PK | Results AVE | Margin [dB] | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Test condition : Tx 52 Ch** | | | | | | | | | | | | |
| 7013.3 | 29.9 | -15.9 | 40.1 | 35.9 | 39.2 | 34.4 | 74.0 | 54.0 | 54.1 | 49.9 | + 4.1 | |
| 10520.0 | 33.4 | -24.9 | < 38.0 | < 28.0 | < 38.0 | < 28.0 | 74.0 | 54.0 | < 46.5 | < 36.5 | > +17.5 | |
| 15780.0 | 37.3 | -25.7 | < 38.0 | < 28.0 | < 38.0 | < 28.0 | 74.0 | 54.0 | < 49.6 | < 39.6 | > +14.4 | |
| 21040.0 | 40.3 | -43.2 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 47.1 | < 37.1 | > +16.9 | |
| 26300.0 | 40.7 | -41.5 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 49.2 | < 39.2 | > +14.8 | |
| 31560.0 | 43.8 | -54.6 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 39.2 | < 29.2 | > +24.8 | |
| 36820.0 | 44.5 | -47.7 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 46.8 | < 36.8 | > +17.2 | |
| **Test condition : Tx 56 Ch** | | | | | | | | | | | | |
| 7039.9 | 29.9 | -15.9 | 40.0 | 35.5 | 39.2 | 34.3 | 74.0 | 54.0 | 54.0 | 49.5 | + 4.5 | |
| 10560.0 | 33.4 | -24.8 | < 38.0 | < 28.0 | < 38.0 | < 28.0 | 74.0 | 54.0 | < 46.6 | < 36.6 | > +17.4 | |
| 15840.0 | 37.3 | -25.7 | < 38.0 | < 28.0 | < 38.0 | < 28.0 | 74.0 | 54.0 | < 49.6 | < 39.6 | > +14.4 | |
| 21120.0 | 40.3 | -43.2 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 47.1 | < 37.1 | > +16.9 | |
| 26400.0 | 40.6 | -41.4 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 49.2 | < 39.2 | > +14.8 | |
| 31680.0 | 43.8 | -54.5 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 39.3 | < 29.3 | > +24.7 | |
| 36960.0 | 44.4 | -47.8 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 46.6 | < 36.6 | > +17.4 | |
| **Test condition : Tx 64 Ch** | | | | | | | | | | | | |
| 7093.3 | 30.0 | -15.9 | 40.5 | 36.0 | 39.2 | 34.6 | 74.0 | 54.0 | 54.6 | 50.1 | + 3.9 | |
| 10640.0 | 33.4 | -24.8 | < 38.0 | < 28.0 | < 38.0 | < 28.0 | 74.0 | 54.0 | < 46.6 | < 36.6 | > +17.4 | |
| 15960.0 | 37.4 | -25.7 | < 38.0 | < 28.0 | < 38.0 | < 28.0 | 74.0 | 54.0 | < 49.7 | < 39.7 | > +14.3 | |
| 21280.0 | 40.4 | -43.3 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 47.1 | < 37.1 | > +16.9 | |
| 26600.0 | 43.4 | -60.2 | < 58.0 | < 48.0 | < 58.0 | < 48.0 | 74.0 | 54.0 | < 41.2 | < 31.2 | > +22.8 | |
| 31920.0 | 43.7 | -54.5 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 39.2 | < 29.2 | > +24.8 | |
| 37240.0 | 44.3 | -47.4 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 46.9 | < 36.9 | > +17.1 | |

Calculated result at 7093.3 MHz, as the worst point shown on underline:

| | | | |
|---|---|---|---|
| | Antenna Factor | = | 30.0 dB(1/m) |
| | Corr. Factor | = | -15.9 dB |
| + ) | Meter Reading | = | 36.0 dB(μV) |
| | Result | = | 50.1 dB(μV/m) |

Minimum Margin: 54.0 - 50.1 = 3.9 (dB)

NOTES
1. Test Distance : 3 m (1 GHz to 26.5 GHz) / 1m (26.5 GHz to 40 GHz)
2. The spectrum was checked from 1 GHz to 40 GHz.
3. The correction factor is shown as follows:
   Corr. Factor [dB] = Cable Loss + 20dB Pad Att. - Pre-Amp. Gain [dB] (1.0 - 7.6GHz)
   Corr. Factor [dB] = Cable Loss + 10dB Pad Att. - Pre-Amp. Gain [dB] (7.6 - 18.0GHz)
   Corr. Factor [dB] = Cable Loss - Pre-Amp. Gain [dB] (18 - 26.5GHz)
   Corr. Factor [dB] = Cable Loss - Pre-Amp. Gain - Distance Factor [dB] (over 26.5GHz)
4. The symbol of "<" means "or less".
5. The symbol of ">" means "more than".
6. PK : Peak / AVE : Average

Mode of EUT : TX mode (802.11n: 20 MHz BW, 5470 – 5725 MHz Band)

Test Date: September 29, 2015
Temp.: 23 °C, Humi: 59 %

| Frequency [MHz] | Antenna Factor [dB(1/m)] | Corr. Factor [dB] | Meter Readings [dB(μV)] Horizontal PK | Horizontal AVE | Vertical PK | Vertical AVE | Limits [dB(μV/m)] PK | Limits AVE | Results [dB(μV/m)] PK | Results AVE | Margin [dB] | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| **Test condition : Tx 100 Ch** | | | | | | | | | | | | |
| 7333.3 | 29.9 | -16.0 | 40.4 | 35.7 | 39.2 | 33.9 | 74.0 | 54.0 | 54.3 | 49.6 | + 4.4 | A/B |
| 11000.0 | 33.4 | -24.6 | < 38.0 | < 28.0 | < 38.0 | < 28.0 | 74.0 | 54.0 | < 46.8 | < 36.8 | > +17.2 | A/B |
| 16500.0 | 37.4 | -24.9 | < 38.0 | < 28.0 | < 38.0 | < 28.0 | 74.0 | 54.0 | < 50.5 | < 40.5 | > +13.5 | A/B |
| 22000.0 | 40.5 | -43.0 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 47.5 | < 37.5 | > +16.5 | A/B |
| 27500.0 | 43.9 | -58.8 | < 58.0 | < 48.0 | < 58.0 | < 48.0 | 74.0 | 54.0 | < 43.1 | < 33.1 | > +20.9 | A/B |
| 33000.0 | 44.0 | -53.5 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 40.5 | < 30.5 | > +23.5 | A/B |
| 38500.0 | 44.3 | -43.9 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 50.4 | < 40.4 | > +13.6 | A/B |
| **Test condition : Tx 116 Ch** | | | | | | | | | | | | |
| 7440.0 | 29.8 | -15.9 | 39.8 | 34.8 | 39.0 | 33.7 | 74.0 | 54.0 | 53.7 | 48.7 | + 5.3 | A/B |
| 11160.0 | 33.4 | -24.5 | < 38.0 | < 28.0 | < 38.0 | < 28.0 | 74.0 | 54.0 | < 46.9 | < 36.9 | > +17.1 | A/B |
| 16740.0 | 37.4 | -24.1 | < 38.0 | < 28.0 | < 38.0 | < 28.0 | 74.0 | 54.0 | < 51.3 | < 41.3 | > +12.7 | A/B |
| 22320.0 | 40.6 | -43.2 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 47.4 | < 37.4 | > +16.6 | A/B |
| 27900.0 | 43.8 | -57.7 | < 58.0 | < 48.0 | < 58.0 | < 48.0 | 74.0 | 54.0 | < 44.1 | < 34.1 | > +19.9 | A/B |
| 33480.0 | 44.0 | -53.1 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 40.9 | < 30.9 | > +23.1 | A/B |
| 39060.0 | 44.3 | -41.9 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 52.4 | < 42.4 | > +11.6 | A/B |
| **Test condition : Tx 140 Ch** | | | | | | | | | | | | |
| 7599.9 | 29.8 | -16.1 | 38.7 | 33.3 | 39.1 | 33.3 | 74.0 | 54.0 | 52.8 | 47.0 | + 7.0 | A/B |
| 11400.0 | 33.3 | -24.6 | < 38.0 | < 28.0 | < 38.0 | < 28.0 | 74.0 | 54.0 | < 46.7 | < 36.7 | > +17.3 | A/B |
| 17100.0 | 37.5 | -22.6 | < 38.0 | < 28.0 | < 38.0 | < 28.0 | 74.0 | 54.0 | < 52.9 | < 42.9 | > +11.1 | A/B |
| 22800.0 | 40.5 | -43.4 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 47.1 | < 37.1 | > +16.9 | A/B |
| 28500.0 | 43.8 | -56.4 | < 58.0 | < 48.0 | < 58.0 | < 48.0 | 74.0 | 54.0 | < 45.4 | < 35.4 | > +18.6 | A/B |
| 34200.0 | 44.0 | -51.7 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 42.3 | < 32.3 | > +21.7 | A/B |
| 39900.0 | 44.6 | -41.0 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 53.6 | < 43.6 | > +10.4 | A/B |

Calculated result at 7333.3 MHz, as the worst point shown on underline:

| | | | |
|---|---|---|---|
| | Antenna Factor | = | 29.9 dB(1/m) |
| | Corr. Factor | = | -16.0 dB |
| + ) | Meter Reading | = | 35.7 dB(μV) |
| | Result | = | 49.6 dB(μV/m) |

Minimum Margin: 54.0 - 49.6 = 4.4 (dB)

NOTES
1. Test Distance : 3 m (1 GHz to 26.5 GHz) / 1m (26.5 GHz to 40 GHz)
2. The spectrum was checked from 1 GHz to 40 GHz.
3. The correction factor is shown as follows:
   Corr. Factor [dB] = Cable Loss + 20dB Pad Att. - Pre-Amp. Gain [dB] (1.0 - 7.6GHz)
   Corr. Factor [dB] = Cable Loss + 10dB Pad Att. - Pre-Amp. Gain [dB] (7.6 - 18.0GHz)
   Corr. Factor [dB] = Cable Loss - Pre-Amp. Gain [dB] (18 - 26.5GHz)
   Corr. Factor [dB] = Cable Loss - Pre-Amp. Gain - Distance Factor [dB] (over 26.5GHz)
4. The symbol of "<" means "or less".
5. The symbol of ">" means "more than".
6. PK : Peak / AVE : Average

### 7.6.4.4.1.3 802.11n ( 40 MHz) Radiated Emission Above 1 GHz

Mode of EUT : TX mode (802.11n: 40 MHz BW, 5150 - 5250 MHz Band)

Test Date: September 29, 2015
Temp.: 23 °C, Humi: 59 %

| Frequency | Antenna Factor | Corr. Factor | Meter Readings [dB(μV)] Horizontal | | Vertical | | Limits [dB(μV/m)] | | Results [dB(μV/m)] | | Margin [dB] | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [MHz] | [dB(1/m)] | [dB] | PK | AVE | PK | AVE | PK | AVE | PK | AVE | | |
| **Test condition : Tx 38 Ch** | | | | | | | | | | | | |
| 6919.9 | 29.9 | -16.0 | 40.5 | 36.0 | 39.6 | 35.1 | 74.0 | 54.0 | 54.4 | 49.9 | + 4.1 | |
| 10380.0 | 33.4 | -25.0 | < 38.0 | < 28.0 | < 38.0 | < 28.0 | 74.0 | 54.0 | < 46.4 | < 36.4 | > +17.6 | |
| 15570.0 | 37.2 | -25.9 | < 38.0 | < 28.0 | < 38.0 | < 28.0 | 74.0 | 54.0 | < 49.3 | < 39.3 | > +14.7 | |
| 20760.0 | 40.2 | -43.0 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 47.2 | < 37.2 | > +16.8 | |
| 25950.0 | 40.8 | -41.7 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 49.1 | < 39.1 | > +14.9 | |
| 31140.0 | 43.9 | -54.6 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 39.3 | < 29.3 | > +24.7 | |
| 36330.0 | 44.2 | -48.4 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 45.8 | < 35.8 | > +18.2 | |
| **Test condition : Tx 46 Ch** | | | | | | | | | | | | |
| 6973.3 | 29.9 | -16.0 | 40.1 | 35.6 | 39.0 | 34.3 | 74.0 | 54.0 | 54.0 | 49.5 | + 4.5 | |
| 10460.0 | 33.3 | -24.9 | < 38.0 | < 28.0 | < 38.0 | < 28.0 | 74.0 | 54.0 | < 46.4 | < 36.4 | > +17.6 | |
| 15690.0 | 37.3 | -25.9 | < 38.0 | < 28.0 | < 38.0 | < 28.0 | 74.0 | 54.0 | < 49.4 | < 39.4 | > +14.6 | |
| 20920.0 | 40.3 | -43.1 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 47.2 | < 37.2 | > +16.8 | |
| 26150.0 | 40.7 | -41.7 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 49.0 | < 39.0 | > +15.0 | |
| 31380.0 | 43.9 | -54.6 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 39.3 | < 29.3 | > +24.7 | |
| 36610.0 | 44.4 | -48.1 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 46.3 | < 36.3 | > +17.7 | |

Calculated result at 6919.9 MHz, as the worst point shown on underline:

| | | | |
|---|---|---|---|
| | Antenna Factor | = | 29.9 dB(1/m) |
| | Corr. Factor | = | -16.0 dB |
| + ) | Meter Reading | = | 36.0 dB(μV) |
| | Result | = | 49.9 dB(μV/m) |

Minimum Margin: 54.0 - 49.9 = 4.1 (dB)

NOTES
1. Test Distance : 3 m (1 GHz to 26.5 GHz) / 1m (26.5 GHz to 40 GHz)
2. The spectrum was checked from 1 GHz to 40 GHz.
3. The correction factor is shown as follows:
   Corr. Factor [dB] = Cable Loss + 20dB Pad Att. - Pre-Amp. Gain [dB] (1.0 - 7.6GHz)
   Corr. Factor [dB] = Cable Loss + 10dB Pad Att. - Pre-Amp. Gain [dB] (7.6 - 18.0GHz)
   Corr. Factor [dB] = Cable Loss - Pre-Amp. Gain [dB] (18 - 26.5GHz)
   Corr. Factor [dB] = Cable Loss - Pre-Amp. Gain - Distance Factor [dB] (over 26.5GHz)
4. The symbol of "<" means "or less".
5. The symbol of ">" means "more than".
6. PK : Peak / AVE : Average

Mode of EUT : TX mode (802.11n: 40 MHz BW, 5250 – 5350 MHz Band)

Test Date: September 29, 2015
Temp.: 23 °C, Humi: 59 %

| Frequency | Antenna Factor | Corr. Factor | Meter Readings [dB(μV)] Horizontal | | Vertical | | Limits [dB(μV/m)] | | Results [dB(μV/m)] | | Margin [dB] | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [MHz] | [dB(1/m)] | [dB] | PK | AVE | PK | AVE | PK | AVE | PK | AVE | | |
| **Test condition : Tx 54 Ch** | | | | | | | | | | | | |
| 7026.6 | 29.9 | -15.9 | 39.9 | 35.9 | 39.4 | 34.4 | 74.0 | 54.0 | 53.9 | 49.9 | + 4.1 | |
| 10540.0 | 33.4 | -24.9 | < 38.0 | < 28.0 | < 38.0 | < 28.0 | 74.0 | 54.0 | < 46.5 | < 36.5 | > +17.5 | |
| 15810.0 | 37.3 | -25.7 | < 38.0 | < 28.0 | < 38.0 | < 28.0 | 74.0 | 54.0 | < 49.6 | < 39.6 | > +14.4 | |
| 21080.0 | 40.3 | -43.2 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 47.1 | < 37.1 | > +16.9 | |
| 26350.0 | 40.6 | -41.5 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 49.1 | < 39.1 | > +14.9 | |
| 31620.0 | 43.8 | -54.6 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 39.2 | < 29.2 | > +24.8 | |
| 36890.0 | 44.5 | -48.0 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 46.5 | < 36.5 | > +17.5 | |
| **Test condition : Tx 62 Ch** | | | | | | | | | | | | |
| 7079.9 | 30.0 | -15.9 | 40.9 | 36.0 | 39.9 | 34.9 | 74.0 | 54.0 | 55.0 | 50.1 | + 3.9 | |
| 10620.0 | 33.4 | -24.8 | < 38.0 | < 28.0 | < 38.0 | < 28.0 | 74.0 | 54.0 | < 46.6 | < 36.6 | > +17.4 | |
| 15930.0 | 37.3 | -25.7 | < 38.0 | < 28.0 | < 38.0 | < 28.0 | 74.0 | 54.0 | < 49.6 | < 39.6 | > +14.4 | |
| 21240.0 | 40.3 | -43.2 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 47.1 | < 37.1 | > +16.9 | |
| 26550.0 | 43.5 | -60.4 | < 58.0 | < 48.0 | < 58.0 | < 48.0 | 74.0 | 54.0 | < 41.1 | < 31.1 | > +22.9 | |
| 31860.0 | 43.8 | -54.6 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 39.2 | < 29.2 | > +24.8 | |
| 37170.0 | 44.4 | -47.4 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 47.0 | < 37.0 | > +17.0 | |

Calculated result at 7079.9 MHz, as the worst point shown on underline:

| | | | |
|---|---|---|---|
| | Antenna Factor | = | 30.0 dB(1/m) |
| | Corr. Factor | = | -15.9 dB |
| + ) | Meter Reading | = | 36.0 dB(μV) |
| | Result | = | 50.1 dB(μV/m) |

Minimum Margin: 54.0 - 50.1 = 3.9 (dB)

NOTES
1. Test Distance : 3 m (1 GHz to 26.5 GHz) / 1m (26.5 GHz to 40 GHz)
2. The spectrum was checked from 1 GHz to 40 GHz.
3. The correction factor is shown as follows:
   Corr. Factor [dB] = Cable Loss + 20dB Pad Att. - Pre-Amp. Gain [dB] (1.0 - 7.6GHz)
   Corr. Factor [dB] = Cable Loss + 10dB Pad Att. - Pre-Amp. Gain [dB] (7.6 - 18.0GHz)
   Corr. Factor [dB] = Cable Loss - Pre-Amp. Gain [dB] (18 - 26.5GHz)
   Corr. Factor [dB] = Cable Loss - Pre-Amp. Gain - Distance Factor [dB] (over 26.5GHz)
4. The symbol of "<" means "or less".
5. The symbol of ">" means "more than".
6. PK : Peak / AVE : Average

Mode of EUT : TX mode (802.11n: 40 MHz BW, 5470 – 5725 MHz Band)

Test Date: September 29, 2015
Temp.: 23 °C, Humi: 59 %

| Frequency | Antenna Factor | Corr. Factor | Meter Readings [dB(μV)] Horizontal | | Vertical | | Limits [dB(μV/m)] | | Results [dB(μV/m)] | | Margin [dB] | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [MHz] | [dB(1/m)] | [dB] | PK | AVE | PK | AVE | PK | AVE | PK | AVE | | |
| **Test condition : Tx 102 Ch** | | | | | | | | | | | | |
| 7346.6 | 29.9 | -16.0 | 40.1 | 35.7 | 39.3 | 34.1 | 74.0 | 54.0 | 54.0 | 49.6 | + 4.4 | A/B |
| 11020.0 | 33.4 | -24.6 | < 38.0 | < 28.0 | < 38.0 | < 28.0 | 74.0 | 54.0 | < 46.8 | < 36.8 | > +17.2 | A/B |
| 16530.0 | 37.3 | -24.8 | < 38.0 | < 28.0 | < 38.0 | < 28.0 | 74.0 | 54.0 | < 50.5 | < 40.5 | > +13.5 | A/B |
| 22040.0 | 40.5 | -43.0 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 47.5 | < 37.5 | > +16.5 | A/B |
| 27550.0 | 43.8 | -58.7 | < 58.0 | < 48.0 | < 58.0 | < 48.0 | 74.0 | 54.0 | < 43.1 | < 33.1 | > +20.9 | A/B |
| 33060.0 | 44.0 | -53.4 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 40.6 | < 30.6 | > +23.4 | A/B |
| 38570.0 | 44.3 | -43.9 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 50.4 | < 40.4 | > +13.6 | A/B |
| **Test condition : Tx 134 Ch** | | | | | | | | | | | | |
| 7560.0 | 29.8 | -16.0 | 38.8 | 33.9 | 38.9 | 33.2 | 74.0 | 54.0 | 52.7 | 47.7 | + 6.3 | A/B |
| 11340.0 | 33.3 | -24.6 | < 38.0 | < 28.0 | < 38.0 | < 28.0 | 74.0 | 54.0 | < 46.7 | < 36.7 | > +17.3 | A/B |
| 17010.0 | 37.5 | -22.9 | < 38.0 | < 28.0 | < 38.0 | < 28.0 | 74.0 | 54.0 | < 52.6 | < 42.6 | > +11.4 | A/B |
| 22680.0 | 40.5 | -43.2 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 47.3 | < 37.3 | > +16.7 | A/B |
| 28350.0 | 43.8 | -56.6 | < 58.0 | < 48.0 | < 58.0 | < 48.0 | 74.0 | 54.0 | < 45.2 | < 35.2 | > +18.8 | A/B |
| 34020.0 | 44.0 | -52.1 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 41.9 | < 31.9 | > +22.1 | A/B |
| 39690.0 | 44.7 | -41.2 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 53.5 | < 43.5 | > +10.5 | A/B |

Calculated result at 7346.6 MHz, as the worst point shown on underline:

| | | | |
|---|---|---|---|
| | Antenna Factor | = | 29.9 dB(1/m) |
| | Corr. Factor | = | -16.0 dB |
| + ) | Meter Reading | = | 35.7 dB(μV) |
| | Result | = | 49.6 dB(μV/m) |

Minimum Margin: 54.0 - 49.6 = 4.4 (dB)

NOTES
1. Test Distance : 3 m (1 GHz to 26.5 GHz) / 1m (26.5 GHz to 40 GHz)
2. The spectrum was checked from 1 GHz to 40 GHz.
3. The correction factor is shown as follows:
   Corr. Factor [dB] = Cable Loss + 20dB Pad Att. - Pre-Amp. Gain [dB] (1.0 - 7.6GHz)
   Corr. Factor [dB] = Cable Loss + 10dB Pad Att. - Pre-Amp. Gain [dB] (7.6 - 18.0GHz)
   Corr. Factor [dB] = Cable Loss - Pre-Amp. Gain [dB] (18 - 26.5GHz)
   Corr. Factor [dB] = Cable Loss - Pre-Amp. Gain - Distance Factor [dB] (over 26.5GHz)
4. The symbol of "<" means "or less".
5. The symbol of ">" means "more than".
6. PK : Peak / AVE : Average

### 7.6.4.4.1.4 802.11ac ( 80 MHz) Radiated Emission Above 1 GHz

Mode of EUT : TX mode (802.11ac: 80 MHz BW, 5150 - 5250 MHz Band)

Test Date: September 29, 2015
Temp.: 23 °C, Humi: 59 %

| Frequency | Antenna Factor | Corr. Factor | Meter Readings [dB(μV)] Horizontal | | Vertical | | Limits [dB(μV/m)] | | Results [dB(μV/m)] | | Margin [dB] | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [MHz] | [dB(1/m)] | [dB] | PK | AVE | PK | AVE | PK | AVE | PK | AVE | | |
| **Test condition : Tx 42 Ch** | | | | | | | | | | | | |
| 6946.6 | 29.9 | -16.0 | 40.3 | 36.1 | 39.6 | 34.7 | 74.0 | 54.0 | 54.2 | 50.0 | + 4.0 | |
| 10420.0 | 33.4 | -25.0 | < 38.0 | < 28.0 | < 38.0 | < 28.0 | 74.0 | 54.0 | < 46.4 | < 36.4 | > +17.6 | |
| 15630.0 | 37.2 | -25.9 | < 38.0 | < 28.0 | < 38.0 | < 28.0 | 74.0 | 54.0 | < 49.3 | < 39.3 | > +14.7 | |
| 20840.0 | 40.3 | -43.2 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 47.1 | < 37.1 | > +16.9 | |
| 26050.0 | 40.7 | -41.5 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 49.2 | < 39.2 | > +14.8 | |
| 31260.0 | 43.8 | -54.6 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 39.2 | < 29.2 | > +24.8 | |
| 36470.0 | 44.4 | -48.2 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 46.2 | < 36.2 | > +17.8 | |

Calculated result at 6946.6 MHz, as the worst point shown on underline:

| | | | |
|---|---|---|---|
| | Antenna Factor | = | 29.9 dB(1/m) |
| | Corr. Factor | = | -16.0 dB |
| + ) | Meter Reading | = | 36.1 dB(μV) |
| | Result | = | 50.0 dB(μV/m) |

Minimum Margin: 54.0 - 50.0 = 4.0 (dB)

NOTES
1. Test Distance : 3 m (1 GHz to 26.5 GHz) / 1m (26.5 GHz to 40 GHz)
2. The spectrum was checked from 1 GHz to 40 GHz.
3. The correction factor is shown as follows:
   Corr. Factor [dB] = Cable Loss + 20dB Pad Att. - Pre-Amp. Gain [dB] (1.0 - 7.6GHz)
   Corr. Factor [dB] = Cable Loss + 10dB Pad Att. - Pre-Amp. Gain [dB] (7.6 - 18.0GHz)
   Corr. Factor [dB] = Cable Loss - Pre-Amp. Gain [dB] (18 - 26.5GHz)
   Corr. Factor [dB] = Cable Loss - Pre-Amp. Gain - Distance Factor [dB] (over 26.5GHz)
4. The symbol of "<" means "or less".
5. The symbol of ">" means "more than".
6. PK : Peak / AVE : Average

Mode of EUT : TX mode (802.11ac: 80 MHz, 5250 – 5350 MHz Band)

Test Date: September 29, 2015
Temp.: 23 °C, Humi: 59 %

| Frequency | Antenna Factor | Corr. Factor | Meter Readings [dB(μV)] Horizontal | | Vertical | | Limits [dB(μV/m)] | | Results [dB(μV/m)] | | Margin [dB] | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [MHz] | [dB(1/m)] | [dB] | PK | AVE | PK | AVE | PK | AVE | PK | AVE | | |
| **Test condition : Tx 58 Ch** | | | | | | | | | | | | |
| 7053.3 | 30.0 | -15.9 | 40.2 | 35.7 | 39.5 | 34.7 | 74.0 | 54.0 | 54.3 | 49.8 | + 4.2 | |
| 10580.0 | 33.4 | -24.8 | < 38.0 | < 28.0 | < 38.0 | < 28.0 | 74.0 | 54.0 | < 46.6 | < 36.6 | > +17.4 | |
| 15870.0 | 37.3 | -25.7 | < 38.0 | < 28.0 | < 38.0 | < 28.0 | 74.0 | 54.0 | < 49.6 | < 39.6 | > +14.4 | |
| 21160.0 | 40.3 | -43.2 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 47.1 | < 37.1 | > +16.9 | |
| 26450.0 | 40.7 | -41.4 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 49.3 | < 39.3 | > +14.7 | |
| 31740.0 | 43.8 | -54.6 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 39.2 | < 29.2 | > +24.8 | |
| 37030.0 | 44.4 | -47.7 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 46.7 | < 36.7 | > +17.3 | |

Calculated result at 7053.3 MHz, as the worst point shown on underline:

| | | | |
|---|---|---|---|
| | Antenna Factor | = | 30.0 dB(1/m) |
| | Corr. Factor | = | -15.9 dB |
| + ) | Meter Reading | = | 35.7 dB(μV) |
| | Result | = | 49.8 dB(μV/m) |

Minimum Margin: 54.0 - 49.8 = 4.2 (dB)

NOTES
1. Test Distance : 3 m (1 GHz to 26.5 GHz) / 1m (26.5 GHz to 40 GHz)
2. The spectrum was checked from 1 GHz to 40 GHz.
3. The correction factor is shown as follows:
   Corr. Factor [dB] = Cable Loss + 20dB Pad Att. - Pre-Amp. Gain [dB] (1.0 - 7.6GHz)
   Corr. Factor [dB] = Cable Loss + 10dB Pad Att. - Pre-Amp. Gain [dB] (7.6 - 18.0GHz)
   Corr. Factor [dB] = Cable Loss - Pre-Amp. Gain [dB] (18 - 26.5GHz)
   Corr. Factor [dB] = Cable Loss - Pre-Amp. Gain - Distance Factor [dB] (over 26.5GHz)
4. The symbol of "<" means "or less".
5. The symbol of ">" means "more than".
6. PK : Peak / AVE : Average

Mode of EUT : TX mode (802.11ac: 80 MHz, 5470 – 5725 MHz Band)

Test Date: September 29, 2015
Temp.: 23 °C, Humi: 59 %

| Frequency | Antenna Factor | Corr. Factor | Meter Readings [dB(μV)] Horizontal | | Meter Readings [dB(μV)] Vertical | | Limits [dB(μV/m)] | | Results [dB(μV/m)] | | Margin [dB] | Remarks |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| [MHz] | [dB(1/m)] | [dB] | PK | AVE | PK | AVE | PK | AVE | PK | AVE | | |
| **Test condition : Tx 106 Ch** | | | | | | | | | | | | |
| 7373.3 | 29.8 | -15.9 | 39.9 | 35.5 | 38.4 | 33.5 | 74.0 | 54.0 | 53.8 | 49.4 | + 4.6 | A/B |
| 11060.0 | 33.4 | -24.6 | < 38.0 | < 28.0 | < 38.0 | < 28.0 | 74.0 | 54.0 | < 46.8 | < 36.8 | > +17.2 | A/B |
| 16590.0 | 37.4 | -24.6 | < 38.0 | < 28.0 | < 38.0 | < 28.0 | 74.0 | 54.0 | < 50.8 | < 40.8 | > +13.2 | A/B |
| 22120.0 | 40.6 | -43.1 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 47.5 | < 37.5 | > +16.5 | A/B |
| 27650.0 | 43.7 | -58.3 | < 58.0 | < 48.0 | < 58.0 | < 48.0 | 74.0 | 54.0 | < 43.4 | < 33.4 | > +20.6 | A/B |
| 33180.0 | 44.0 | -53.2 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 40.8 | < 30.8 | > +23.2 | A/B |
| 38710.0 | 44.3 | -43.1 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 51.2 | < 41.2 | > +12.8 | A/B |
| **Test condition : Tx 122 Ch** | | | | | | | | | | | | |
| 7480.0 | 29.8 | -15.9 | 39.7 | 35.0 | 39.7 | 34.6 | 74.0 | 54.0 | 53.6 | 48.9 | + 5.1 | A/B |
| 11220.0 | 33.3 | -24.5 | < 38.0 | < 28.0 | < 38.0 | < 28.0 | 74.0 | 54.0 | < 46.8 | < 36.8 | > +17.2 | A/B |
| 16830.0 | 37.5 | -23.6 | < 38.0 | < 28.0 | < 38.0 | < 28.0 | 74.0 | 54.0 | < 51.9 | < 41.9 | > +12.1 | A/B |
| 22440.0 | 40.6 | -43.2 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 47.4 | < 37.4 | > +16.6 | A/B |
| 28050.0 | 43.8 | -57.2 | < 58.0 | < 48.0 | < 58.0 | < 48.0 | 74.0 | 54.0 | < 44.6 | < 34.6 | > +19.4 | A/B |
| 33660.0 | 44.0 | -52.9 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 41.1 | < 31.1 | > +22.9 | A/B |
| 39270.0 | 44.4 | -41.6 | < 50.0 | < 40.0 | < 50.0 | < 40.0 | 74.0 | 54.0 | < 52.8 | < 42.8 | > +11.2 | A/B |

Calculated result at 7373.3 MHz, as the worst point shown on underline:

| | | | |
|---|---|---|---|
| | Antenna Factor | = | 29.8 dB(1/m) |
| | Corr. Factor | = | -15.9 dB |
| + ) | Meter Reading | = | 35.5 dB(μV) |
| | Result | = | 49.4 dB(μV/m) |

Minimum Margin: 54.0 - 49.4 = 4.6 (dB)

NOTES
1. Test Distance : 3 m (1 GHz to 26.5 GHz) / 1m (26.5 GHz to 40 GHz)
2. The spectrum was checked from 1 GHz to 40 GHz.
3. The correction factor is shown as follows:
   Corr. Factor [dB] = Cable Loss + 20dB Pad Att. - Pre-Amp. Gain [dB] (1.0 - 7.6GHz)
   Corr. Factor [dB] = Cable Loss + 10dB Pad Att. - Pre-Amp. Gain [dB] (7.6 - 18.0GHz)
   Corr. Factor [dB] = Cable Loss - Pre-Amp. Gain [dB] (18 - 26.5GHz)
   Corr. Factor [dB] = Cable Loss - Pre-Amp. Gain - Distance Factor [dB] (over 26.5GHz)
4. The symbol of "<" means "or less".
5. The symbol of ">" means "more than".
6. PK : Peak / AVE : Average

## 7.7 Dynamic Frequency Selection

For the requirements, ☑ - Applicable [ ☑ - Tested. ☐ - Not tested by applicant request. ]
☐ - Not Applicable

### 7.7.1 Test Results

For the standard, ☑ - **Passed** ☐ - **Failed** ☐ - **Not judged**

#### 7.7.1.1 Channel Moving Time (Limit : < 10 sec.)

| | | | | | |
|---|---|---|---|---|---|
| 802.11n 20 MHz | 2.520 | sec. | at | 5500 | MHz |
| 802.11n 40 MHz | 2.556 | sec. | at | 5510 | MHz |
| 802.11ac 80 MHz | 2.532 | sec. | at | 5530 | MHz |

#### 7.7.1.2 Channel Closing Transmission Time (Limit : < 60 msec.)

| | | | | | |
|---|---|---|---|---|---|
| 802.11n 20 MHz | 14.0 | msec. | at | 5500 | MHz |
| 802.11n 40 MHz | 12.0 | msec. | at | 5510 | MHz |
| 802.11ac 80 MHz | 12.0 | msec. | at | 5530 | MHz |

#### 7.7.1.3 Non-occupancy Period (Limit : ≥ 30 min.)

| | | | | | |
|---|---|---|---|---|---|
| 802.11n 20 MHz | > 30 | min. | at | 5500 | MHz |
| 802.11n 40 MHz | > 30 | min. | at | 5510 | MHz |
| 802.11ac 80 MHz | > 30 | min. | at | 5530 | MHz |

Uncertainty of Measurement Results 0.6 %B(2σ)

Remarks : The EUT is a client without radar detection therefore applicable requirements are only the above. Test was performed using a radar type 0.

### 7.7.2 Test Instruments

| Shielded Room S1 | | | | |
|---|---|---|---|---|
| **Type** | **Model** | **Serial No. (ID)** | **Manufacturer** | **Cal. Due** |
| Spectrum Analyzer | E4446A | US44300388 (A-39) | Agilent | 2016/08/11 |
| Signal Generator | MG3710A | 6201171711 (B-41) | Anritsu | 2016/08/13 |
| Horn Antenna(*1) | 3160-05 | 9902-1061 (C-56) | EMCO | 2016/06/29 |
| Double-Ridge Guide Horn Antenna(*2) | TR17206 | 73370006 (C-29) | ADVANTEST | 2016/06/23 |
| RF Cable(*1) | SUCOFLEX104 | 267414/4 (C-67) | HUBER+SUHNER | 2016/01/19 |
| RF Cable(*2) | SUCOFLEX102E | 6683/2E (C-70) | HUBER+SUHNER | 2015/11/18 |

(*1) Radar Antenna and the cable
(*2) Monitor Antenna and the cable

NOTE : The calibration interval of the above test instruments is 12 months.

### 7.7.3 Test Method and Test Setup (Diagrammatic illustration)

The Dynamic Frequency Selection(DFS) measurements were carried out in accordance with FCC Part 15.407(h) and KDB905462 D02 UNII DFS Compliance Procedures New Rules " COMPLIANCE MEASUREMENT PROCEDURES FOR UNII DEVICES OPERATIONG IN THE 5250-5350 MHz AND 5470-5725 MHz BANDS INCORPORATING DYNAMIC FREQUENCY SELECTION".

#### 7.7.3.1 DFS Detection Threshold and DFS Response Requirement

**DFS Detection Thresholds for Master Devices and Client Devices With Radar Detection**

| **Maximum Transmit Power** | **Value (See Notes 1, 2 and 3)** |
|---|---|
| ≥ 200 milliwatt | -64 dBm |
| EIRP < 200 milliwatt and power spectral density < 10 dBm/MHz | -62 dBm |
| EIRP < 200 milliwatt that do not meet the power spectral density requirement | -64 dBm |
| **Note 1:** This is the level at the input of the receiver assuming a 0 dBi receive antenna. **Note 2:** Throughout these test procedures an additional 1 dB has been added to the amplitude of the test transmission waveforms to account for variations in measurement equipment. This will ensure that the test signal is at or above the detection threshold level to trigger a DFS response. **Note3:** EIRP is based on the highest antenna gain. For MIMO devices refer to KDB Publication 662911 D01. | |

**Table 4: DFS Response Requirement Values**

| Parameter | Value |
|---|---|
| Non-Occupancy Period | Minimum 30 minutes |
| Channel Availability Check Time | 60 seconds |
| Channel Move Time | 10 seconds (See Note 1.) |
| Channel Closing Transmission Time | 200 milliseconds + an aggregate of 60 milliseconds over remaining 10 second period. (See Notes 1 and 2.) |
| U-NII Detection Bandwidth | Minimum 100% of the U-NII 99% transmission power bandwidth. (See Note 3.) |
| **Note 1:** Channel Move Time and the Channel Closing Transmission Time should be performed with Radar Type 0. The measurement timing begins at the end of the Radar Type 0 burst.<br>**Note 2:** The Channel Closing Transmission Time is comprised of 200 milliseconds starting at the beginning of the Channel Move Time plus any additional intermittent control signals required to facilitate a Channel move (an aggregate of 60 milliseconds) during the remainder of the 10 second period. The aggregate duration of control signals will not count quiet periods in between transmissions.<br>**Note 3:** During the U-NII Detection Bandwidth detection test, radar type 0 is used and for each frequency step the minimum percentage of detection is 90 percent. Measurements are performed with no data traffic. | |

### 7.7.3.2 Radar Test Waveforms

This section provides the parameters for required test waveforms, minimum percentage of successful detections, and the minimum number of trials that must be used for determining DFS conformance. Step intervals of 0.1 microsecond for Pulse Width, 1 microsecond for PRI, 1 MHz for chirp width and 1 for the number of pulses will be utilized for the random determination of specific test waveforms.

**Short Pulse Radar Test Waveforms**

| Radar Type | Pulse Width (µsec) | PRI (µsec) | Number of Pulses | Minimum Percentage of Successful Detection | Minimum Number of Trials |
|---|---|---|---|---|---|
| 0 | 1 | 1428 | 18 | See Note1 | See Note1 |
| 1 | 1 | See KDB905462 D02 | | 60% | 40 |
| 2 | 1-5 | 150-230 | 23-29 | 60% | 30 |
| 3 | 6-10 | 200-500 | 16-18 | 60% | 30 |
| 4 | 11-20 | 200-500 | 12-16 | 60% | 30 |
| Aggregate (Radar Types 1-4) | | | | 80% | 120 |
| Note 1: Short Pulse Radar Type 0 should be used for the detection bandwidth test, channel move time, and channel closing time tests. | | | | | |

A minimum of 30 unique waveforms are required for each of the Short Pulse Radar Types 2 through 4. For Short Pulse Radar Type 0, the same waveform is used a minimum of 30 times. If more than 30 waveforms are used for Short Pulse Radar Types 2 through 4, then each additional waveform must also be unique and not repeated from the previous waveforms. The aggregate is the average of the percentage of successful detections of Short Pulse Radar Types 1-4.

**Long Pulse Radar Test Waveforms**

| Radar Type | Pulse Width (µsec) | Chirp Width (MHz) | PRI (µsec) | Number of Pulses per *Burst* | Number of *Bursts* | Minimum Percentage of Successful Detection | Minimum Number of Trials |
|---|---|---|---|---|---|---|---|
| 5 | 50-100 | 5-20 | 1000-2000 | 1-3 | 8-20 | 80% | 30 |

The parameters for this waveform are randomly chosen. Thirty unique waveforms are required for the Long Pulse Radar Type waveforms. If more than 30 waveforms are used for the Long Pulse Radar Type waveforms, then each additional waveform must also be unique and not repeated from the previous waveforms. Each waveform is defined as follows:

1) The transmission period for the Long Pulse Radar test signal is 12 seconds.
2) There are a total of 8 to 20 Bursts in the 12 second period, with the number of Bursts being randomly chosen. This number is Burst_Count.
3) Each Burst consists of 1 to 3 pulses, with the number of pulses being randomly chosen. Each Burst within the 12 second sequence may have a different number of pulses.
4) The pulse width is between 50 and 100 microseconds, with the pulse width being randomly chosen. Each pulse within a Burst will have the same pulse width. Pulses in different Bursts may have different pulse widths.
5) Each pulse has a linear frequency modulated chirp between 5 and 20 MHz, with the chirp width being randomly chosen. Each pulse within a Burst will have the same chirp width. Pulses in different Bursts may have different chirp widths. The chirp is centered on the pulse. For example, with a radar frequency of 5300 MHz and a 20 MHz chirped signal, the chirp starts at 5290 MHz and ends at 5310 MHz.
6) If more than one pulse is present in a Burst, the time between the pulses will be between 1000 and 2000 microseconds, with the time being randomly chosen. If three pulses are present in a Burst, the random time interval between the first and second pulses is chosen independently of the random time interval between the second and third pulses.
7) The 12 second transmission period is divided into even intervals. The number of intervals is equal to Burst_Count. Each interval is of length (12,000,000 / Burst_Count) microseconds. Each interval contains one Burst. The start time for the Burst, relative to the beginning of the interval, is between 1 and [(12,000,000 / Burst_Count) – (Total Burst Length) + (One Random PRI Interval)] microseconds, with the start time being randomly chosen. The step interval for the start time is 1 microsecond. The start time for each Burst is chosen independently.

**Frequency Hopping Radar Test Waveform**

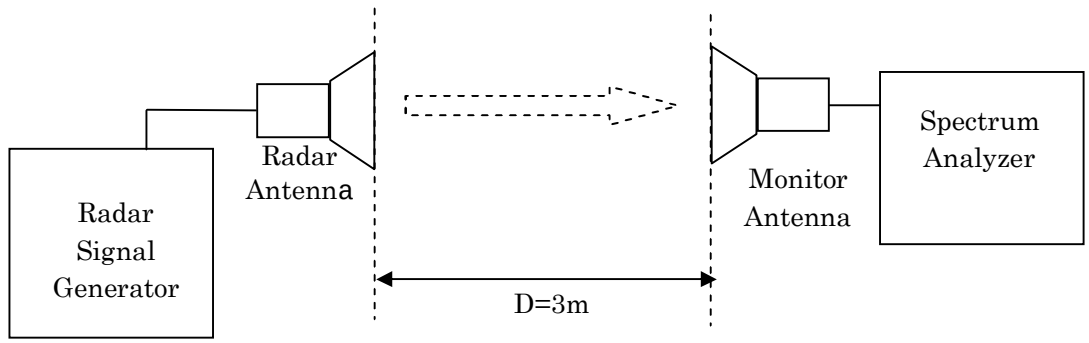
| Radar Type | Pulse Width (µsec) | PRI (µsec) | Pulses per Hop | Hopping Rate (kHz) | Hopping Sequence Length (msec) | Minimum Percentage of Successful Detection | Minimum Number of Trials |
|---|---|---|---|---|---|---|---|
| 6 | 1 | 333 | 9 | 0.333 | 300 | 70% | 30 |

For the Frequency Hopping Radar Type, the same Burst parameters are used for each waveform. The hopping sequence is different for each waveform and a 100-length segment is selected from the hopping sequence defined by the following algorithm:

The first frequency in a hopping sequence is selected randomly from the group of 475 integer frequencies from 5250 – 5724 MHz. Next, the frequency that was just chosen is removed from the group and a frequency is randomly selected from the remaining 474 frequencies in the group. This process continues until all 475 frequencies are chosen for the set. For selection of a random frequency, the frequencies remaining within the group are always treated as equally likely.

### 7.7.3.3 Rader Waveform Calibration

**Radiated Calibration Setup Diagram**

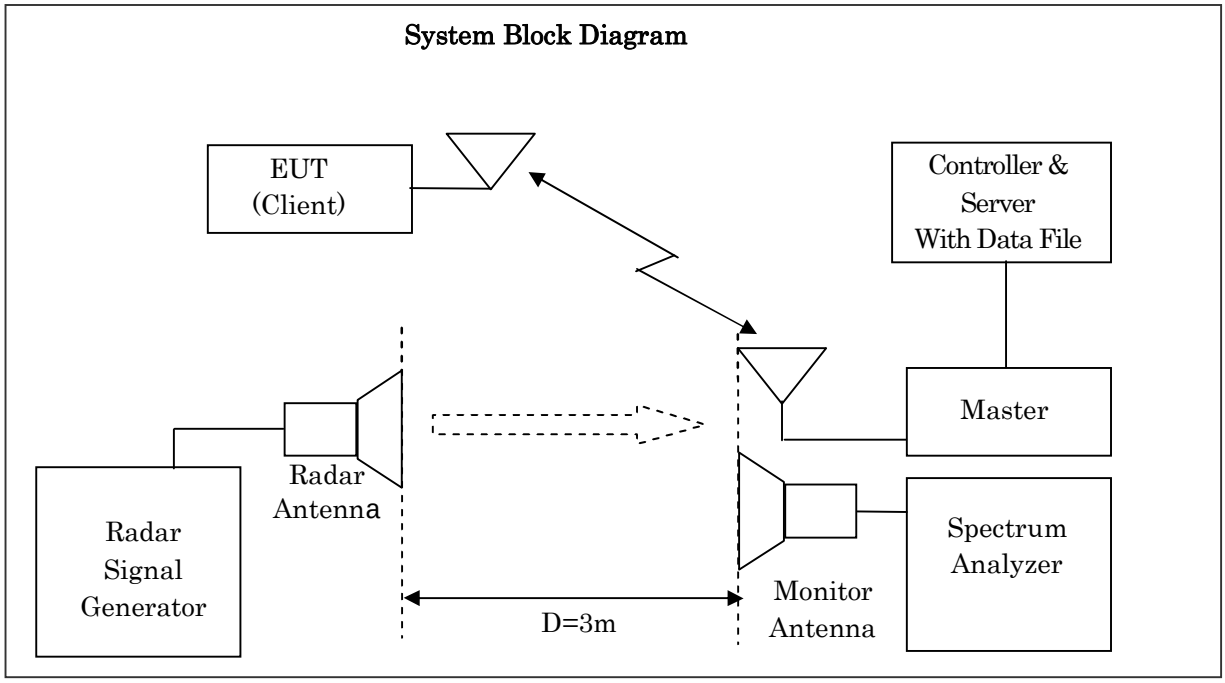



The EUT is the client device without radar detection, then master device is a RDD. Therefore the radar test signal level is set at the Radar Detection Threshold Level of master device.
The Radar Detection Threshold Level is employed -64dBm + 1dB = -63 dBm at the antenna port.
Where the antenna gain of master device is X dBi then the threshold level is corrected as
"-63 – X" dBm (Rated output power and Antenna Gain of the master device is described in EUT Description).
The spectrum analyzer is connected to the monitor antenna via a coaxial cable. The antenna is set vertical polarization for testing. The reference level offset of a spectrum analyzer set to "Monitoring Antenna Gain – Cable loss". The Radar Signal Generator is set to CW output mode and the signal level is adjusted to "-63 – X" dBm on the spectrum analyze setting as below;

Frequency: Radar Signal Frequency
Span: Zero Span(Time Domain)
RBW/VBW: 3 MHz
Detection: Peak

The spectrum analyzer plots of the calibrated radar waveform on the Channel frequency is attached in clause 7.7.4.1 in this report.

### 7.7.3.4 Test Setup and Operation Radiated Method




**Support Equipment:** The following support equipment was used for in this DFS testing

| Item | Manufacturer | Model No. | Serial No. | FCC ID |
|---|---|---|---|---|
| Wireless Access Point | HP | JG993A | CN4AGTG05K | O9C-BJNGAFB0004 |
| Unified WLAN Switch | HP | JG641A | CN49G5Q053 | N/A |
| PC(Controller/Server) | HP Compaq | D330 uT | JPA42500TB | DoC |

**Used Test File and Displayed Traffic Level Adjustment:**

The test is performed with the designated MPEG test file that is streamed from the access point to the client in full motion video mode using the media player with the V2.61 Codec package. This file is used by IP and Frame based systems for loading the test channel during the In-service compliance testing of the U-NII device.

By control PC, the radio link is established between the master and slave and the test file in sever(PC) is streamed via master(access point) to generate WLAN traffic.

The monitoring antenna is adjusted so that the WLAN traffic level on the spectrum analyzer is lower than the radar detection threshold level. (Channel loading was over 17 %.)

The spectrum analyzer plots of the slave(EUT) data traffic plot is attached in clause 7.7.4.2 and the nominal noise floor plots is attached in clause 7.7.4.3 in this report.

### 7.7.3.5 Description of EUT

| Item | Specification |
|---|---|
| Operating Frequency(MHz) | 5150 to 5250 / 5250 to 5350 / 5470 to 5725 |
| Operating Mode of EUT | Client(Slave) Device without Radar Detection |
| FCC ID for Master Device(*1) | O9C-BJNGAFB0004 (Antenna Gain: 5.0 dBi) |
| Antenna Type of EUT | Inverted-L Type Antenna |
| Highest Power Level(EIRP)/ Antenna Gain of EUT | 802.11a Main/Sub:12.5 dBm Max.<br>802.11n/ac(20 MHz BW) Main/Sub:11.5 dBm Max.<br>802.11n/ac(40 MHz BW) Main/Sub:11.5 dBm Max.<br>802.11ac(80 MHz) Main/Sub:11.5 dBm Max.<br>Antenna Gain: 0 dBi |
| System Architecture | IEEE802.11 a/n/ac, IP based system |
| TPC Description | N/A(Not Required EIRP below 500 mW) |
| Data Rate/ Channel Bandwidth | Refer below table. |
| Power-on Cycle | N/A(No Channel Availability Check Function) |

(*1) The rated output power of the master device is greater than 23dBm(EIRP), then the interference threshold level is employed -64 dBm. After correction for procedural adjustments, the radiated threshold level at the master device are;

-64 + 1 – 5 dBi(Master antenna Gain) = -68 dBm

**Data Rate/ Channel Bandwidth**

| IEEE802.11 a | | | IEEE802.11 n | | |
|---|---|---|---|---|---|
| Modulation | Data Rate (Mbps) | Channel Bandwidth (MHz) | Modulation | Data Rate(Mbps) Channel Bandwidth(MHz) 20 | 40 |
| BPSK | 6 | 20 | BPSK | 6.5 | 13.5 |
| BPSK | 9 | 20 | QPSK | 13.0 | 27.0 |
| QPSK | 12 | 20 | QPSK | 19.5 | 40.5 |
| QPSK | 18 | 20 | 16-QAM | 26.0 | 54.0 |
| 16-QAM | 24 | 20 | 16-QAM | 39.0 | 81.0 |
| 16-QAM | 36 | 20 | 64-QAM | 52.0 | 108.0 |
| 64-QAM | 48 | 20 | 64-QAM | 58.5 | 121.5 |
| 64-QAM | 54 | 20 | 64-QAM | 65.0 | 135.0 |

| IEEE802.11 ac | | | |
|---|---|---|---|
| Modulation | Data Rate(Mbps) Channel Bandwidth(MHz) 20 | 40 | 80 |
| BPSK | 6.5 | 13.5 | 29.3 |
| QPSK | 13.0 | 27.0 | 58.5 |
| QPSK | 19.5 | 40.5 | 87.8 |
| 16-QAM | 26.0 | 54.0 | 117.0 |
| 16-QAM | 39.0 | 81.0 | 175.5 |
| 64-QAM | 52.0 | 108.0 | 234.0 |
| 64-QAM | 58.5 | 121.5 | 263.3 |
| 64-QAM | 65.0 | 135.0 | 292.5 |
| 256-QAM | 78.0 | 162.0 | 351.0 |
| 256-QAM | N/A | 180.0 | 390.0 |

### 7.7.3.6 Deviation to the procedures and equipment from the standards:

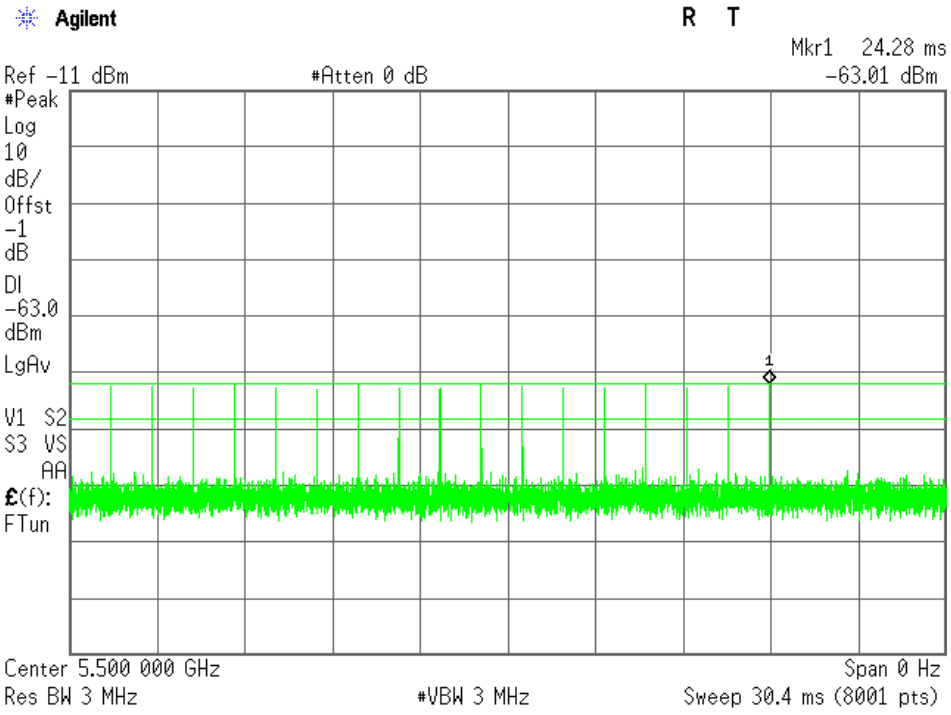
There is no deviation from FCC Rule and KDB905462 D02.

### 7.7.4 Test Data

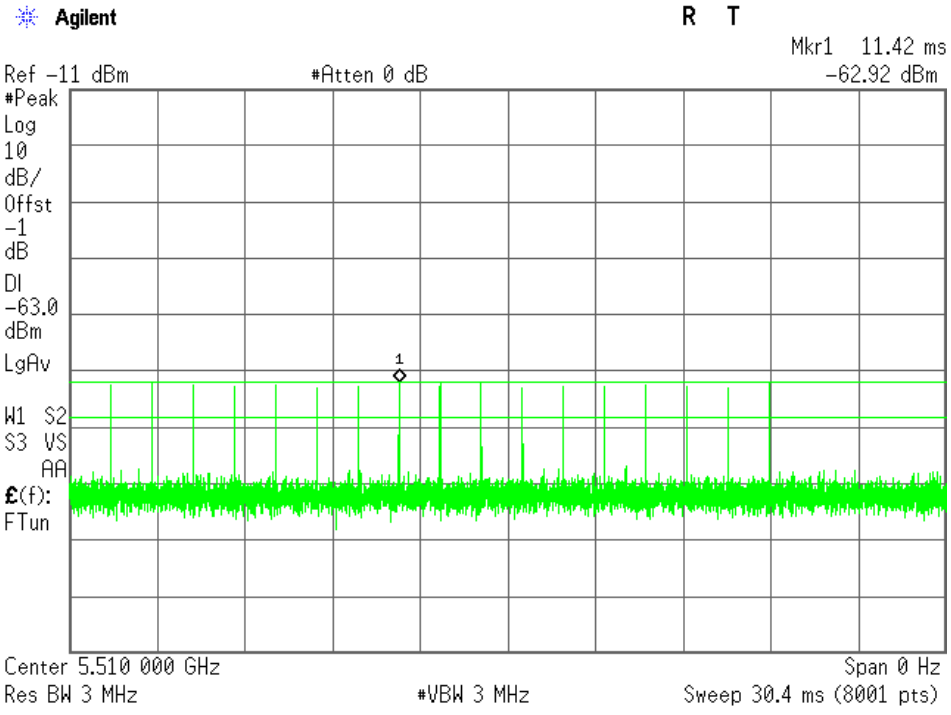
Test Date : October 1, 2015
Temp.: 24°C, Humi: 66%

#### 7.7.4.1 Radar Waveform Calibration Results (Type 0 Short Pulse)

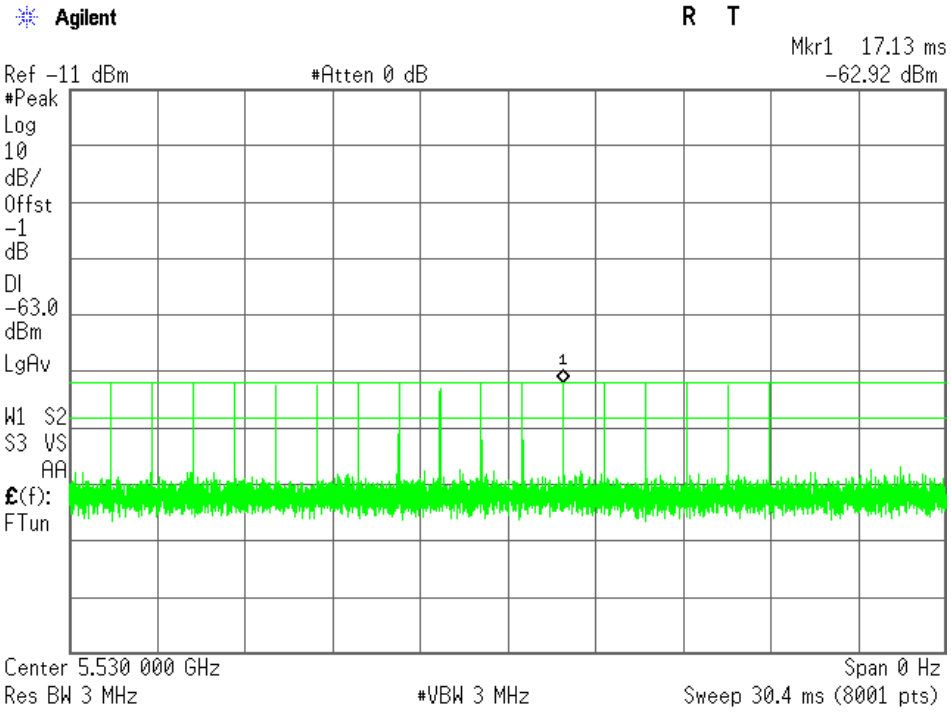
5500 MHz




5510 MHz

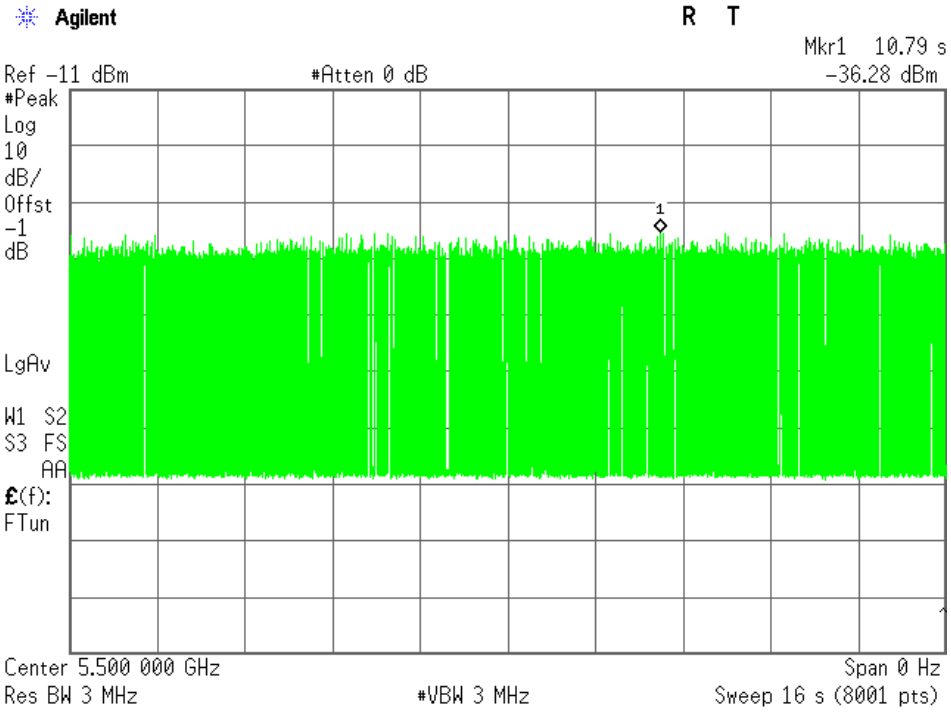


5530 MHz

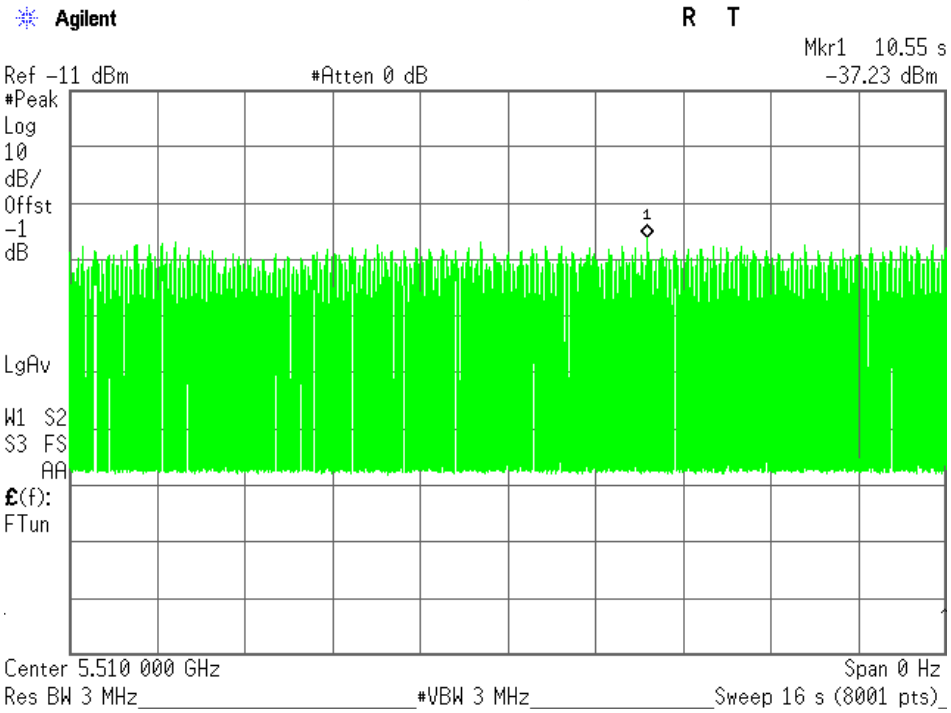

Agilent
R T
Mkr1 17.13 ms
Ref -11 dBm
#Atten 0 dB
-62.92 dBm
#Peak
Log
10
dB/
Offst
-1
dB
Dl
-63.0
dBm
LgAv
W1 S2
S3 VS
AA
£(f):
FTun
Center 5.530 000 GHz
Span 0 Hz
Res BW 3 MHz
#VBW 3 MHz
Sweep 30.4 ms (8001 pts)

### 7.7.4.2 EUT (Slave) Traffic Plots

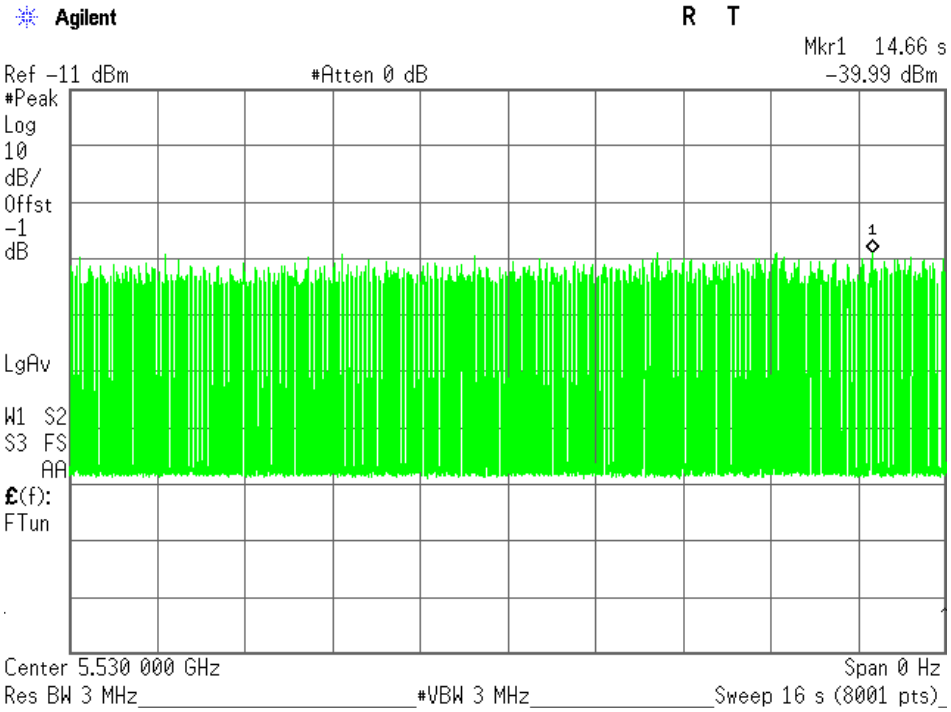
20 MHz BW, 5500 MHz




40 MHz BW, 5510 MHz

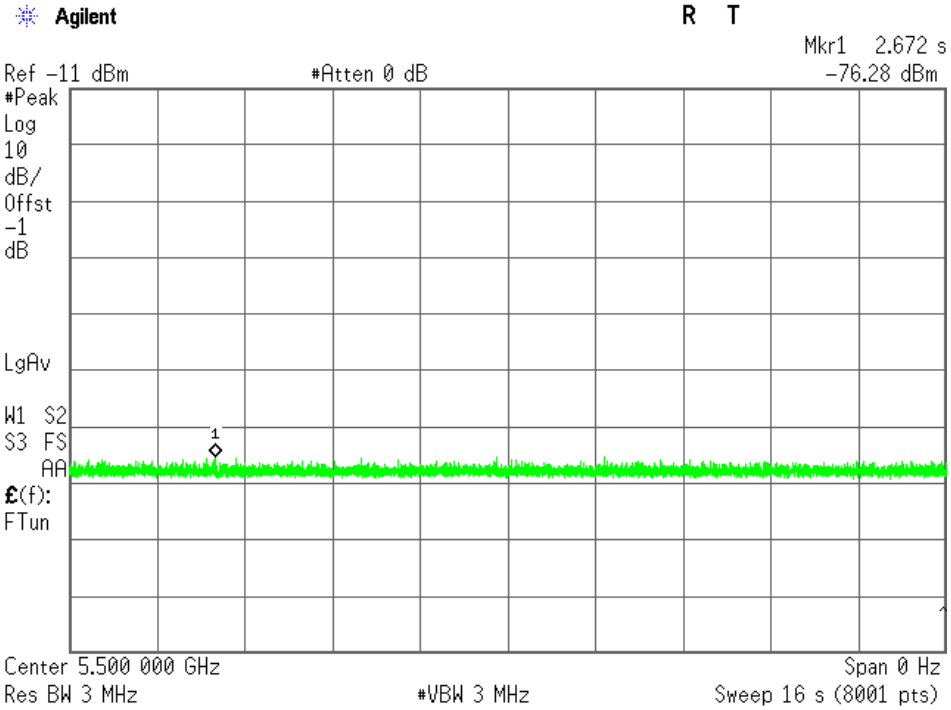


**80 MHz BW, 5530 MHz**

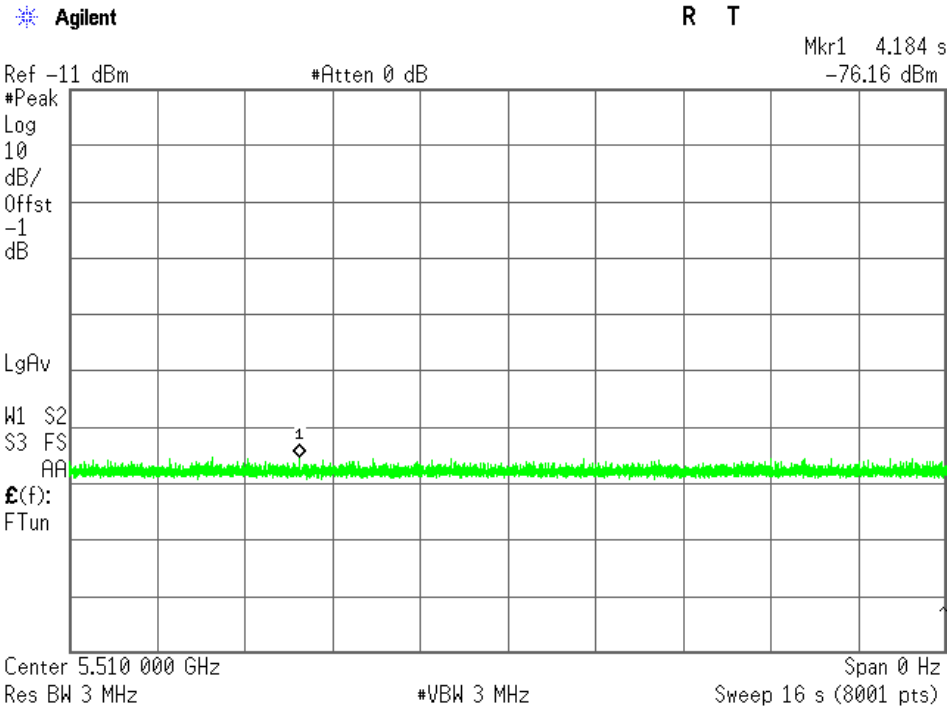


### 7.7.4.3 No Traffic (Noise Floor) Plots

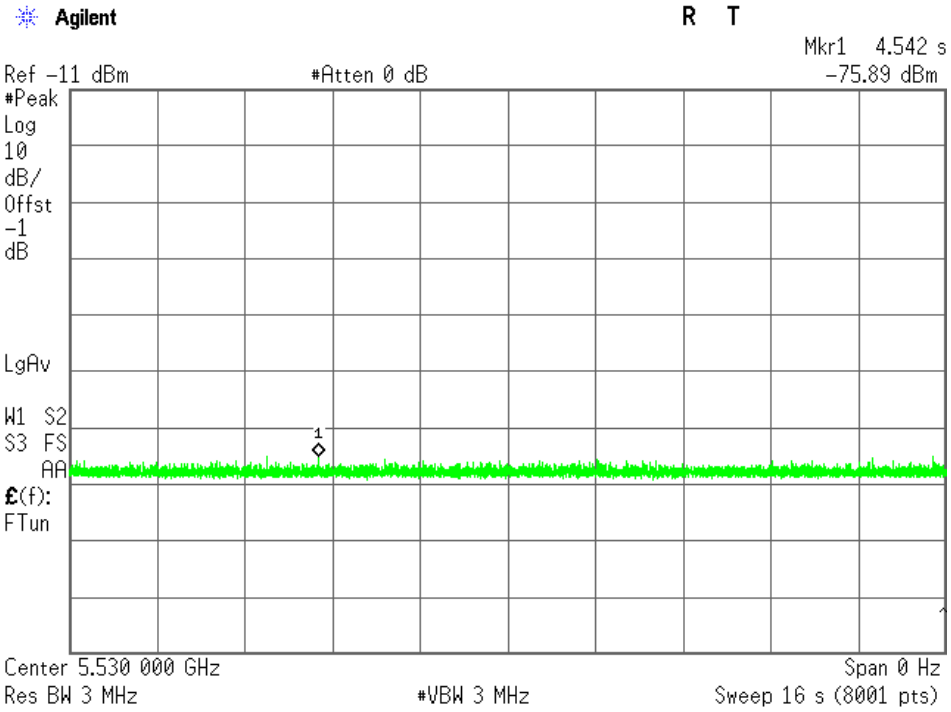
5500 MHz




5510 MHz



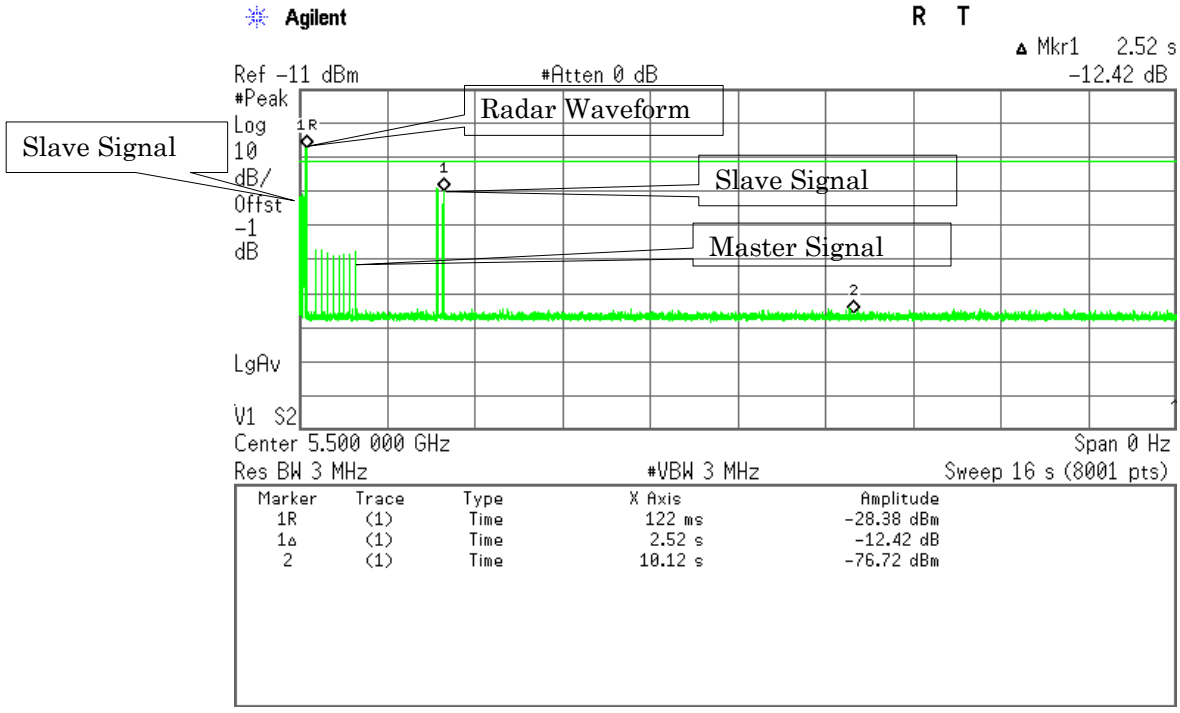
5530 MHz


Agilent
R T
Mkr1 4.542 s
Ref -11 dBm
#Atten 0 dB
-75.89 dBm
#Peak
Log
10
dB/
Offst
-1
dB
LgAv
W1 S2
S3 FS
AA
£(f):
FTun
Center 5.530 000 GHz
Span 0 Hz
Res BW 3 MHz
#VBW 3 MHz
Sweep 16 s (8001 pts)

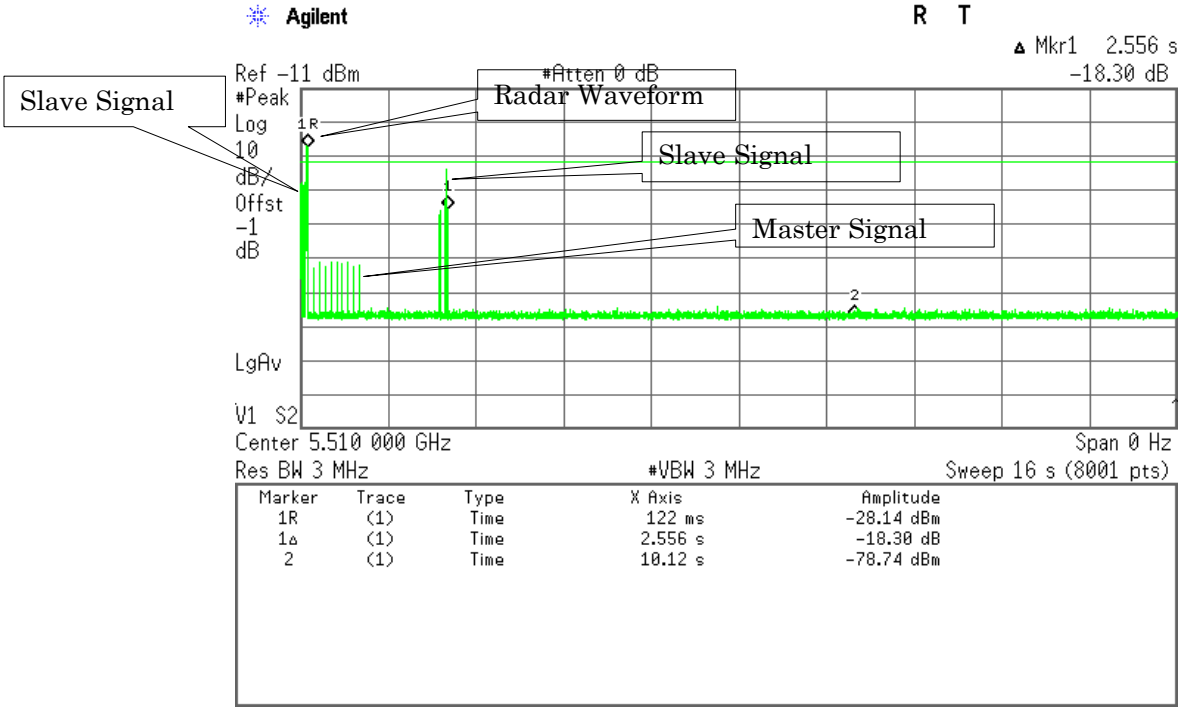
### 7.7.4.4 Channel Move Time

The channel move time is measured using delta-marker function of the spectrum analyzer. The reference marker is adjusted at the end of radar pulse and the delta marker is adjusted at the end the WLAN transmission. The displayed delta value is the result of move time. It shall be within the 10 seconds.
The measurements are carried out 802.11n CH.100 (5500MHz)/ 20 MHz BW, 802.11n CH.102(5510 MHz)/ 40 MHz BW and 802.11ac CH.106(5530 MHz)/ 80 MHz BW.

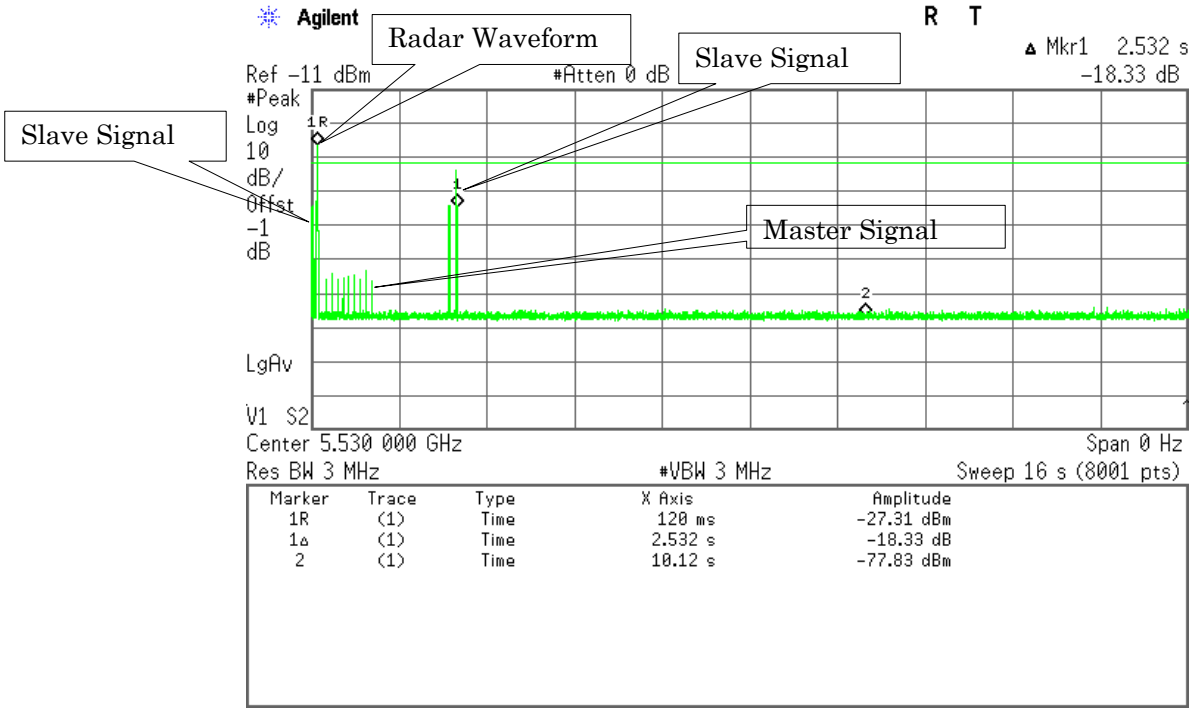
**Channel Move Time Plots for 20 MHz BW, 5500 MHz**




**Channel Move Time Plots for 40 MHz BW, 5510 MHz**



**Channel Move Time Plots for 80 MHz BW, 5530 MHz**



### 7.7.4.5 Channel Closing Transmission Time

The aggregate channel closing transmission time is calculated as follows;
**D** is the dwell time per spectrum analyzer sampling bin.
**S** is the sweep time.
**B** is the number of spectrum analyzer sampling bin.
**N** is the number of spectrum analyzer sampling bins showing a UNII transmission(intermittent control signal).

**Channel Closing Time = D * N = S / B * N**

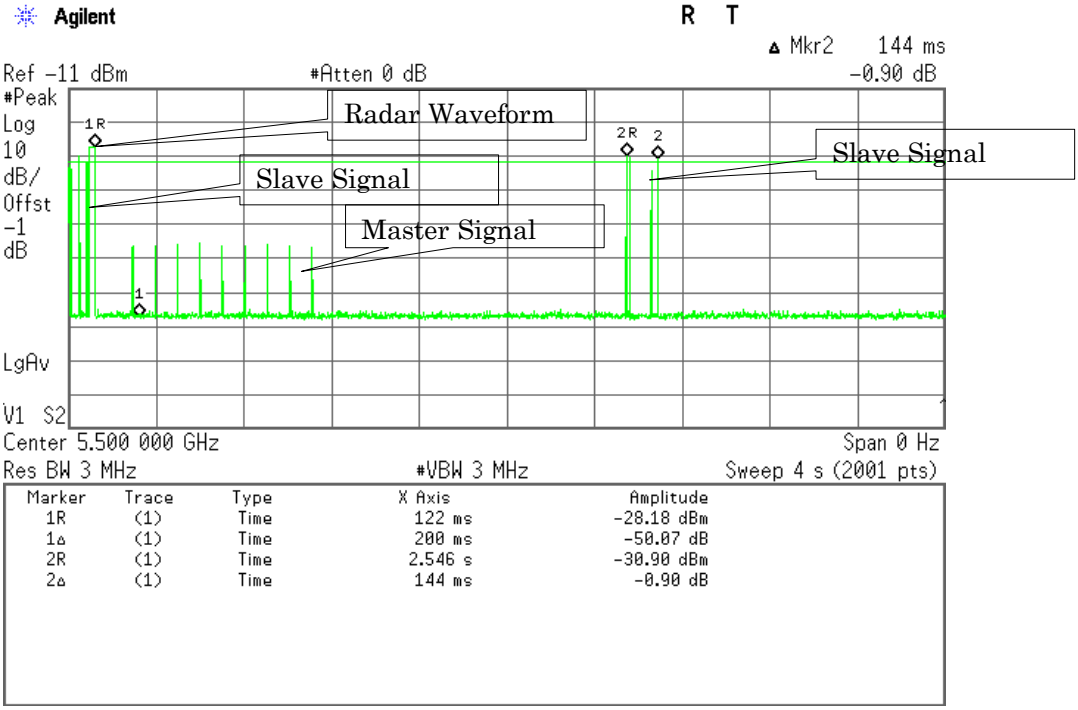
The observation period over which the aggregate transmission time is calculated begins at (the reference marker + 200 msec.) and end on earlier than (the reference marker + 10 sec.).
The measurements are carried out 802.11n CH.100 (5500MHz)/ 20 MHz BW, 802.11n CH.102(5510 MHz)/ 40 MHz BW and 802.11ac CH.106(5530 MHz)/ 80 MHz BW.

Test Results

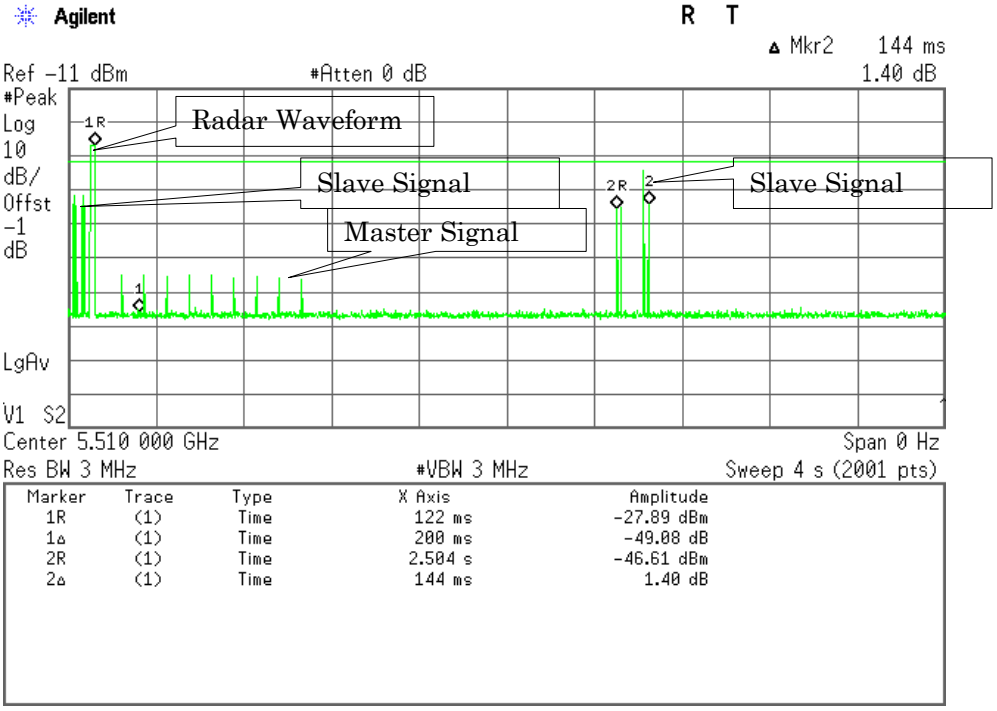
| Channel | Frequency (MHz) | Mode | Sweep Time( S) (msec) | (B) | (N) | Channel Closing Time (msec) |
|---|---|---|---|---|---|---|
| 100 | 5500 | 20 MHz BW | 4000 | 2000 | 7 | 14 |
| 102 | 5510 | 40 MHz BW | 4000 | 2000 | 6 | 12 |
| 106 | 5530 | 80 MHz BW | 4000 | 2000 | 6 | 12 |

The test result (Channel Closing Time) is calculated as follows;
For 100 channel (5500 MHz)
Channel Closing Time = **D** * **N** = **S** / **B** * **N** = 4000 / 2000 * 7 = 14 msec.

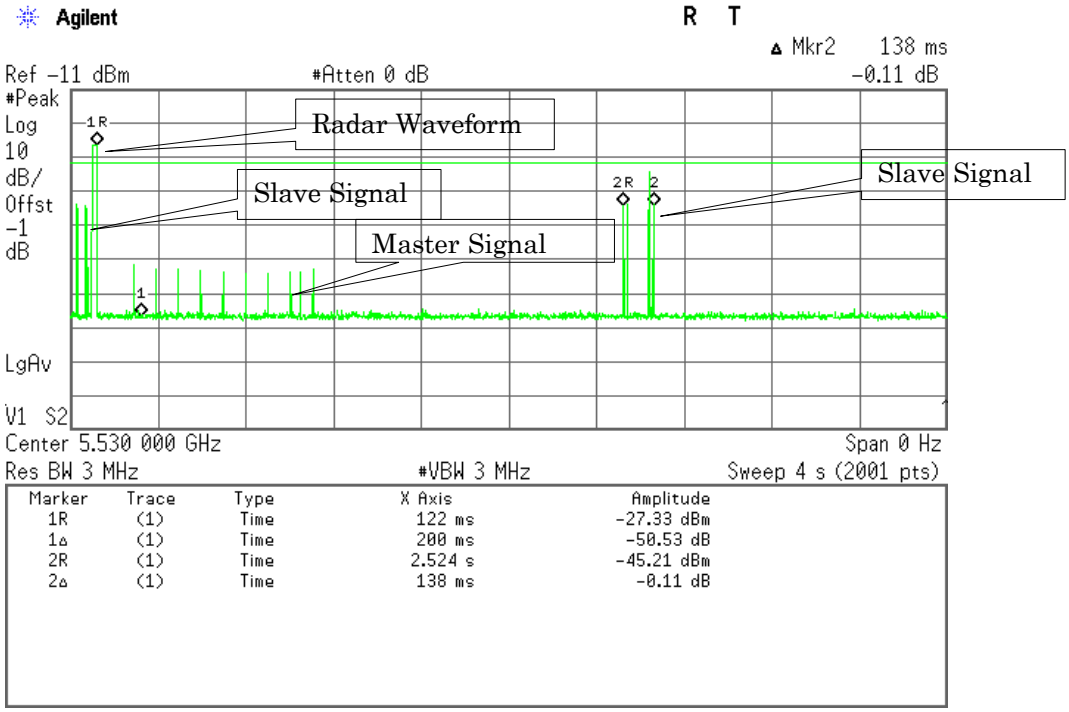
**Channel Closing Transmission Time Plots for 20 MHz BW, 5500 MHz**




**Channel Closing Transmission Time Plots for 40 MHz BW, 5510 MHz**



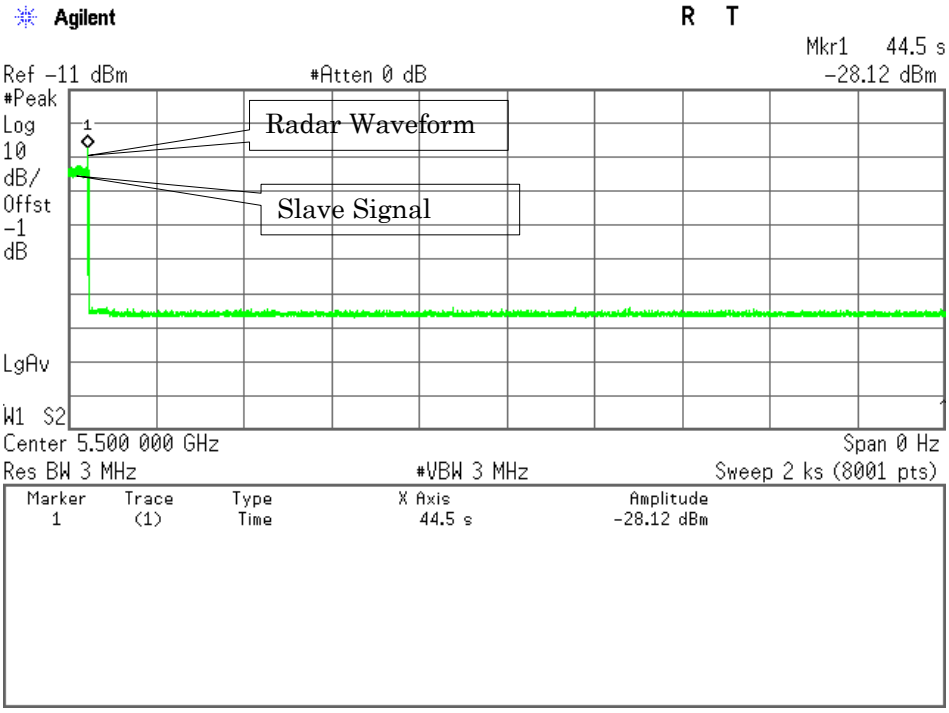
**Channel Closing Transmission Time Plots for 80 MHz BW, 5530 MHz**



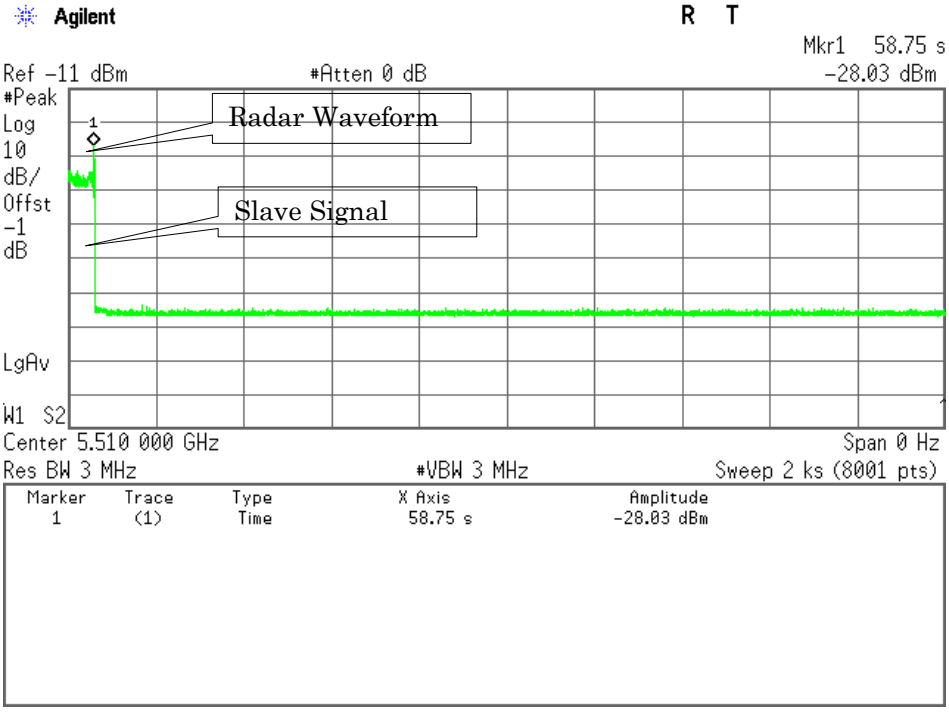
### 7.7.4.6 Non-Occupancy Period

During the 30 minutes observation time, EUT did not make any transmissions on a channel.
The measurements are carried out 802.11n CH.100 (5500MHz)/ 20 MHz BW, 802.11n CH.102(5510 MHz)/ 40 MHz BW and 802.11ac CH.106(5530 MHz)/ 80 MHz BW.

**Non-Occupancy Period Plots for**
**20 MHz BW, 5500 MHz**




**40 MHz BW, 5510 MHz**



**80 MHz BW, 5530 MHz**